

# IN PURSUIT OF HAPPINESS



## A study of substance use among Guam High School Youth



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University of Guam



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# **IN PURSUIT OF HAPPINESS:**

## **A STUDY OF SUBSTANCE USE AMONG GUAM HIGH SCHOOL YOUTH**

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**DISCLAIMER:** The views and interpretations contained within this report are those of the authors and do not necessarily reflect the policies or views of the U.S. Department of Education, the University of Guam or the Office of the Governor of Guam.

### **INQUIRIES AND ACCESS PROCEDURES**

A copy of the raw data file may be requested for use in research or educational teaching. Making data available for secondary analyses will optimize the creation of relevant knowledge by cooperating professionals. Guam human service and public agencies can benefit from the devoted time and motivated interests of all professionals able to produce valid findings advancing knowledge about health and service related issues on our island. The more research based facts that are made available from the widest range of research applications, the better public officials can make truly informed decisions that will improve public services and policy.

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## Preface

***Drug abuse among youth*** – in many conversations people talk of this topic as though it is separate from moderate, socially accepted, and/or legal consumption of substances by adults. We know this isn't true. The lines and distinctions that are drawn between "legal and illegal," or "use and abuse," can become very blurry. Perhaps the point to be made about substance use among youth is that it will very likely mirror substance use among adults. Youth are working hard to become adults – especially in their teenage years. They anticipate and look forward to becoming "adult." Adults use substances to cope with physical or mental health stresses, and to enhance physical and mental health pleasures. Youth experiment with doing those things that adults do, and like adults, they too are in the pursuit of happiness and a good life.

The study reported here is meant to provide empirical evidence and documentation of use patterns among the high school youth of Guam. This technical report you are reading now is only the first publication of what the authors- myself and my colleagues – hope will become a series of articles, factsheets, and educational materials. We intend to analyze this high school data in more detail and with more advance statistical procedures. In fact we have already begun to do it. Dr. Perez is working on understanding the peculiar findings that we report here in Section 8; and Dr. Pinhey informed me in correspondence that his continued work is showing that (1) teachers play an important role in reducing violence among youth, and (2) that the more we involve students in extracurricular activities (drama clubs, yearbooks, sports, youth groups) the less they get into physical confrontations with each other. The project has also collected similar data from Guam's Middle School youth in grade levels 6, 7 and 8. In the coming year we will be putting out this same kind of technical report, as well as articles and material combining the studies.

Randall L. Workman  
October 1998



**In the Pursuit of Happiness:**  
A Study of Substance Abuse and Violence Among  
Guam's High School Youth

**INTRODUCTION**

This report presents the results of a survey of Guam's high school students that was designed to examine their use of various active drug substances, and to examine the association of their substance use patterns with their knowledge and perceptions of various forms of physical violence. A review of the literature on substance use on Guam reveals that:

- published studies in this area of research are few;
- existing studies have focused primarily upon adults;
- existing studies focus generally on the use of alcohol (Pinhey et. al., 1992, Pinhey 1997a) and marijuana (Pinhey 1997 b).

The results of previous investigations suggest that young males on Guam are more likely than other persons to abuse active drug substances, and that strong social ties (i.e., being married, being employed, being a parent) are likely to reduce levels of alcohol consumption among males and cigarette smoking among females (Pinhey et. al 1992).

In response to this scarcity of empirical research data focusing on Guam's teenagers, the current study targeted Guam's high school aged youth, and it also broadened the spectrum of previously studied substances to include tobacco, alcohol, marijuana, cocaine,



methamphetamine, and other licit and illicit substances. As Marshall and his colleagues (1994) recently noted, there is a particular concern on Guam about the growing abuse of methamphetamine, which is a particularly insidious drug. Data from mainland U.S. studies indicate that those at greatest risk for methamphetamine use are:

- 15 years of age or younger (53 percent vs. 47 percent who are 16 years of age or older);
- male (64 percent vs. 36 percent female);
- middle income (49 percent vs. 27 percent who are low income); and
- white (69 percent vs. 15 percent Hispanics-Latino; 8 percent African Americans; 8 percent other ethnic groups).

Although exploratory investigations have recently examined the associations between economic stress, alcohol use, and domestic violence on Guam (Pinhey, Lennon, and Pinhey 1998), other forms of violence on Guam have yet to undergo systematic study. Previous research suggests that exposure to violence (e.g., threats and victimization) consistently predict physical aggression among younger males (Fitzpatrick, 1997), and that the use of alcohol may also be associated with various forms of violent behaviors, and particularly domestic violence (see Pinhey, Lennon, and Pinhey for a review).

This study begins with a brief review of the literature on substance use and violence on Guam, and is followed by a brief report of overall drug arrests, juvenile substance use, and experiences with violence on Guam, based on Uniform Crime Report data. A description of the sampling procedures, the survey questionnaire used for the study, and

characteristics of the sample are described in Section 1 (page 13). Finally, we present chapters giving descriptive analyses of the data, and conclude this report with a discussion of the implications of our findings that may be useful for counselors, teachers, nurses, doctors, police officers, youth club leaders and other professionals who may be interested in addressing violence and substance use issues among Guam's youth.

## **PREVIOUS RESEARCH**

Alcohol use in Guam and throughout the Islands of Micronesia is pervasive (Marshall 1993; Marshall 1991; Pinhey et. al., 1992). Drinking has not only been directly linked to mental health problems in Micronesia (Hezel and Wylie, 1992), but also to various forms of physical violence (Hoff, 1992; Marshall 1979; Nero 1990), suicide (Rubinstein 1992), and with injuries resulting from automobile accidents. Alcohol use is also a leading risk factor for a number of physical health problems, including cirrhosis of the liver, which is a leading cause of death on Guam and among the top 10 causes of death for men on Guam (Vital Statistics 1993-1996). Alcohol use is primarily a male activity in the U.S. mainland (Catalano et al., 1993), in Micronesia (Marshall 1987; Marshall 1979; Nero 1990), and on Guam (Pinhey 1997a).

These problems resulting from drinking are well known. But, what is unclear are the causes of drinking or what forces may reduce the harm alcohol consumption can cause. In U.S. mainland populations, higher incomes are associated with the use of beverage alcohol, whereas lower

incomes correlate strongly with severe alcohol problems (see Greenburg and Grunberg 1995 for review). These findings suggest that people with higher incomes can afford to drink more frequently but poor people (low incomes) are more likely to suffer harm from their drinking, which may include lower incomes due to job loss (Pinhey, 1997a). These use patterns for alcohol appear to hold for Guam's extensive Asian-Pacific population (Pinhey 1997a; Pinhey and Ellison, 1997). The literature also supports the hypothesis that strong social ties (i.e., employment, marriage, parenthood) reduce significantly the use of alcohol and other drug substances (see Pinhey et. al., 1992 and Umberson, 1987 for reviews), and that the loss of these important social ties (i.e., unemployment, divorce, children leaving home) may increase alcohol and substance abuse (see Catalano et. al., 1993 and Horwitz and Davies, 1994 for review). Alcohol use is also associated with the loss of loved ones and with participation in funerals and other social events on Guam (see Pinhey and Ellison, 1997 for a review). In short, being embedded within social networks and surrounded by responsible people helps control drinking but losing these supports or suffering other life stress trauma may push people toward drinking.

Marijuana is the world's most widely used illegal substance, and about one in four Americans currently report having tried marijuana (National Institute on Drug Abuse, 1990; U.S. Bureau of the Census, 1988). Marijuana use is most frequent among those between 18 and 25



years of age, and is more popular among males than females in both the U.S. mainland (Robbins, 1989; National Institute of Drug Abuse, 1990; U.S. Bureau of the Census, 1988), and on Guam (Pinhey, 1997b). Current estimates of marijuana use among adults on Guam (i.e., persons who are 18 years of age and older) suggest that between 8 and 14 percent of adults have tried marijuana (Pinhey, 1997b).

A search of scientific literature for Guam reveals virtually no studies that examine the use or abuse of other active drug substances (i.e., cocaine, methamphetamine) or that focus on violence among Guam's youth. Research conducted in the U.S. mainland, however, indicates that male high school students are more likely than female high school students to participate in violent behavior (i.e., a physical confrontation). Moreover, students who do not think they should apologize after a confrontation and those who believe it is "cool" to possess a gun, or to threaten other students with weapons, report more fighting than their counterparts (Fitzpatrick, 1997 p. 142). Students living in non-intact families (i.e., living with other than their biological parents) report participation in physical confrontations more often than do students living in intact families (Fitzpatrick, 1997).

In summary, the available literature strongly suggests that younger males are at greater risk than their counterparts to abuse or use various active drug substances and to participate in violent behavior. These

individuals also appear more likely than other persons to be members of non-intact or troubled families

## **UNIFORM CRIME REPORT DATA ON DRUG VIOLATIONS AND VIOLENT CRIME**

The Uniform Crime Report (UCR) is an official source of crime data published yearly by the Federal Bureau of Investigation (FBI). The UCR presents data on offenses known to police through reporting, clearances, and arrests. The UCR is a standardized national estimate widely used for:

- **Part I - index crimes** (i.e. murder, non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, arson).
- **Part II - non-index crimes** which are defined as 21 "less serious" offenses (i.e. assault, fraud, liquor law violations, drug violations, etc.).

The Guam Police Department has participated in the program since 1970. Because the UCR is standardized and mandatory for federal law enforcement agencies (Uniform Crime Reporting Act), it is the leading national source in the U.S. and Guam that allows for making comparisons between different geographical locations.

Our main interest for this study is that the UCR also collects and provides information on juvenile drug arrests and violence on Guam and in the U.S. UCR data includes arrests for possession by drug types for adults and juveniles, overall alcohol and drug related violence, and drug abuse and violent offenses in high schools. The purpose of presenting UCR data is to illustrate the demographic context involving substance

related offenses and violence on Guam, and reveals the need for the present study given the limitations of UCR data.

### **Possession**

Table 1a.1 displays overall arrests for possession by drug types in 1996, and indicates the frequency of possession for juveniles. Overall, there were 155 arrests for possession of illegal substances, and the majority of all arrests for possession involved “Ice” (68%), followed by marijuana (25%). However, juveniles accounted for only four of all arrests for possession, and these exclusively involved marijuana. In terms of possession, this figure contradicts “popular” perceptions that the juvenile drug problem has reached epidemic proportions on Guam. Research is clearly needed to examine levels of use and explore this disparity between official data and public perception.

### **Alcohol/Drug Related Violence**

Table 1a.2 reveals the frequency and proportion of alcohol/drug related violent crimes in 1996. Among the 521 officially documented violent crimes (i.e. murder, rape, robbery, aggravated assault) in 1996, three-fourths (76.6%) were alcohol/drug related. Looking at the far right panel of Table 1a.2, the overwhelming majority of murders (86.7%), robberies (95.3%), and aggravated assaults (98.7%) were alcohol/drug related. With respect to homicide (see Table 1a.3), over one-third (37%) of homicides in 1996 were alcohol related, while nearly half (47%) were related to illegal drugs. However, these figures merely suggest



connections not causality. Alcohol may not “cause” violence, but where there is violence we will more often than not find alcohol and other drugs in use.

### **Drug Abuse and Violent Offenses in High Schools**

Table 1a.4 indicates UCR data for drug abuse and violent offenses in Guam’s high schools in 1996. Drug abuse (9.7%) and violent offenses (20.7%) combined account for almost one-third of the 175 total police-reported offenses in high schools. Among violent offenses, the majority involved other “simple” assaults (30), followed by aggravated assaults (5), and one rape.

In summary, Guam’s Uniform Crime Report data offer a general picture of the prevalence of drug offenses and violent crimes that are uncovered by or reported to Guam police. However, this is only a “tip of the iceberg” due to the weaknesses of UCR data: our knowledge of drug related behavior and violence remains limited. A major limitation of the UCR is that it relies on official reports/arrests and police discretion in reporting crimes. Thus, the UCR may be a measure of police practice rather than actual incidence of drug related crime, delinquency, and violent offenses. The UCR may also underestimate the actual frequency of drug related and violent offenses, since unreported cases are not accounted for. This is precisely the rationale for self-report studies, such as the one presented here.

Table 1a.1 1996 UCR Data: Arrests for Possession by Drug Types on Guam

	Arrests		Juvenile Arrests (under 17 years of age)	
	N	%	N	%
Marijuana	38	24.5	4	100.0
Heroin	7	4.5	0	00.0
Cocaine	5	3.2	0	00.0
Ice	105	67.7	0	00.0
Total	155	100.0	4	100.0

Source: Crime in the U.S. Territory of Guam 1996 Uniform Crime Report UCR)

Table 1a.2 1996 UCR Data: Alcohol and Drug Related Violent Crimes on Guam

	Arrests		Alcohol/Drug Related Arrests		% Related to Alcohol/Drugs
	N <sup>1</sup>	%	N <sup>2</sup>	%	
Murder	15	2.9	13	3.3	86.7
Rape	168	32.3	56	14.0	33.3
Robbery	107	20.5	102	25.6	95.3
Aggravated Assault	231	44.3	228	57.1	98.7
Total	521	100.0	339	100.0	76.6

Source: Crime in the U.S. Territory of Guam 1996 Uniform Crime Report (UCR)

Table 1a.3 1996 UCR Data: Alcohol and Drug Related Homicides on Guam

	Frequency	Percent
Homicides Related to Alcohol	29	37.0
Homicides Related to Drugs	37	47.0
Homicides not Related to Drugs	12	16.0
Total Homicides	78	100.0

Source: Crime in the U.S. Territory of Guam 1996 Uniform Crime Report (UCR)

Table 1a.4 1996 UCR Data: Drug Abuse and Violent Offenses in High Schools on Guam

	Frequency	Percent
Drug Abuse Violations	17	9.7
Violent Aggravated Assault	5	3.0
Other Assaults (Small)	30	17.0
Rape	1	0.6
All other offenses	122	69.7
Total Offenses	175	100.0

Source: Crime in the U.S. Territory of Guam 1996 Uniform Crime Report (UCR)

## RESEARCH METHODS

This study used a self-administered questionnaire survey of high school students conducted on Guam during the April-June term of 1998. At the time there were seventeen (17) public and private high schools on the island with an estimated total population enrollment of 10,900 students (based on reports collected from each school system/principal). Three schools chose not to participate: two were private schools of fundamentalist religious denominations, and the third was the Department of Defense Education Activity (DODEA) school system. This reduced our Population Sampling Frame to 10,410 students (95.5% of actual total). The uniqueness of these particular student bodies, and the transient character of DODEA families, means that their exclusion did not alter the character of the final study sample. **Data collection was aimed at obtaining a sample of about 800 usable surveys, which would provide a margin error of  $\pm 3.0$  percent.**



For each of the high schools in the Sampling Frame we calculated a proportionate percentage of students at each grade level, and then randomly selected clusters of classes from each school from within each grade level. When the proportion of students was less than the number of individuals in an average class, students were randomly selected from within classes at appropriate grade levels. Absenteeism on data collection days, parental consent refusal, and several exclusions for erroneous response patterns reduced the actual number of usable questionnaires (Non-consent/refusal rate = 3% or 27 of 800). **Displayed in Table 1.1, this methodology resulted in a study sample of 773 completed questionnaires representative of Guam's high school population by grade level.**

Table 1.1 Sampling Frame of students from Public, Private, & Catholic Schools.

<i>Schools</i>	Number Targeted				Percent Of 800	Number Collected				Percent Of 773
	Grade 9	Grade 10	Grade 11	Grade 12		Grade 9	Grade 10	Grade 11	Grade 12	
Public	267	188	124	105	85.50%	205	194	147	102	83.8%
Catholic	23	22	19	18	10.25%	18	22	19	19	10.1%
Other Private	10	9	8	7	4.25%	13	14	11	9	6.1%
<b>TOTAL</b>	<b>300</b>	<b>219</b>	<b>151</b>	<b>130</b>	<b>800</b>	<b>236</b>	<b>230</b>	<b>177</b>	<b>130</b>	<b>773</b>
<b>Percentage</b>	<b>38%</b>	<b>27%</b>	<b>19%</b>	<b>16%</b>	<b>100%</b>	<b>31%</b>	<b>30%</b>	<b>23%</b>	<b>17%</b>	<b>100%</b>

Examining the percentage distributions by grade level (bottom row), the collected sample is concentrated within the mid-range classes of 10<sup>th</sup> and 11<sup>th</sup> grade levels. Although the lower 9<sup>th</sup> grade level is slightly under-represented, the direction of bias is “lumped” in the middle grades or “heart” of the high school youth subculture; and the proportion of senior

(12<sup>th</sup> grade level) matches the targeted proportion. **Therefore, this study achieved a reliable, trustworthy, and meaningful representation of Guam's long term, core population of high school aged youth enrolled in grade levels 9, 10, 11, and 12.**

We realize, and as Jerald Bachman and John Wallace (1991) clarify, the findings of this study are affected by the sample's built-in bias being restricted to "Students enrolled and attending schools." Our sampling methodology missed those young people who were incarcerated, suspended or who had dropped out of school. Such persons have greater-than-average probabilities of being involved with drug use, and violent behavior, and it would be safe to say that the level of drug use is likely higher than estimated solely on the basis of surveys from students attending schools. Even so, *THE DRUG PROBLEM* is a bigger issue than just "hard" narcotics. When we include abuses of alcohol and the addictions of nicotine cigarettes among the field of substances to be studied, the big picture expands out to encompass more common persons and everyday people. Nationwide, 79 percent of high school students in the U.S. reported they had at least one drink of alcohol in 1997 and one-out-of-two (51 percent) reported they currently drink (U.S. CDC, 1998). In the same study, one-out-of-five students are current cigarette smokers. In this wider view, most youthful substance users are students and most youthful substance addicts are in-school.

The questionnaire used for the study asked respondents to reply to 52 questions designed to measure knowledge and use of alcohol, tobacco, marijuana, cocaine, methamphetamine, and other licit and illicit substances. Respondents were also asked questions on both awareness of violence or crime in their school and village of residence, as well as their own experience and observation of physical fighting on school property. Other questions centered on self-assessments of physical and emotional health, participation in village and extra-curricular activities, and perceptions of students' interaction with adults, parents and teachers.

## **DESCRIPTION OF THE SAMPLE**

### **Age and Grade**

Chart 1.1 reveals the 16-17 years of age cohort to be the modal grouping (one with the greatest number of persons), accounting for half of the sample (49.3%), followed by students ages 15 years of age and younger (39.8%). The smallest age cohort, those 18 years of age or older (11.0%) does not account for all seniors (16.8%) in the sample. This means that age cohorts cross over grade-level class groupings. Thus, juniors (22.5%) consisted of those 18+ and those age 16-17 years. Sophomores, who represented 30% of the sample, ranged in age from 15 to 18 years.

### **Gender and Ethnicity**

Chart 1.2 also indicates the sample was almost equally distributed between males (51.4%) and females (48.6%). Ethnic distribution of the sample is, in turn, proportionate to the general population of the island

(U.S. Census, 1990). Chamorro (43.4%) and Filipino students (43.4%) accounted for the majority of students. Among smaller ethnic communities, Caucasian, Asian, and Micronesian students make up about 13% or one out-of-every-seven persons on island.

### **Place of Birth**

Chart 1.3 illustrates that most students were born on Guam (63.8%), followed by places within territorial areas of the United States (13.6%), and then International nations such as the Philippines (12.5%), FSM (3.3%), CNMI (1.8%), other Pacific Islands (.8%) and Europe (1.2%).

### **Summary Description of the Sample**

The sample is characterized as composed equally of male and female students, 16-17 years of age, who were primarily within the sophomore and junior grade levels, and more likely born on Guam than other locations. Even so, one-fourth of respondents were born either in the Philippines or territorial areas of the United States.



Chart 1.1 General Characteristics of Sample Frequency  
(AGE and GRADE)

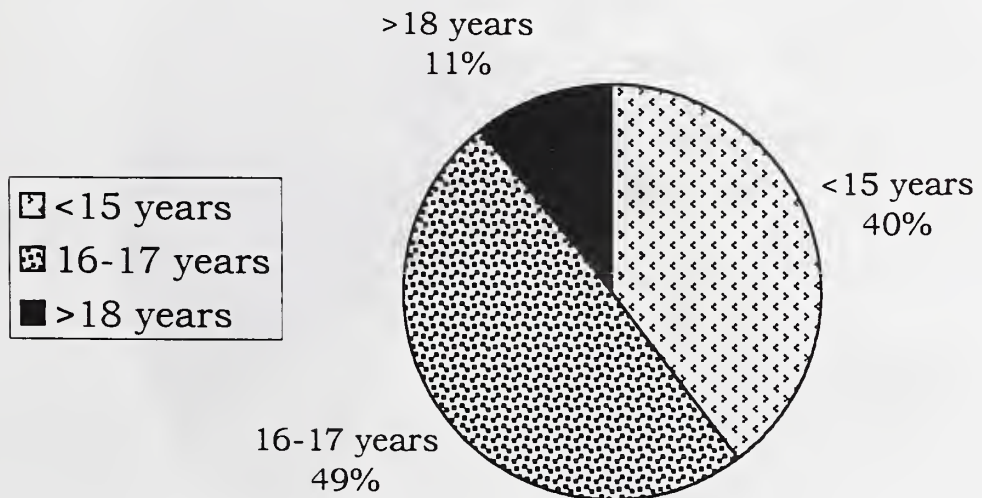
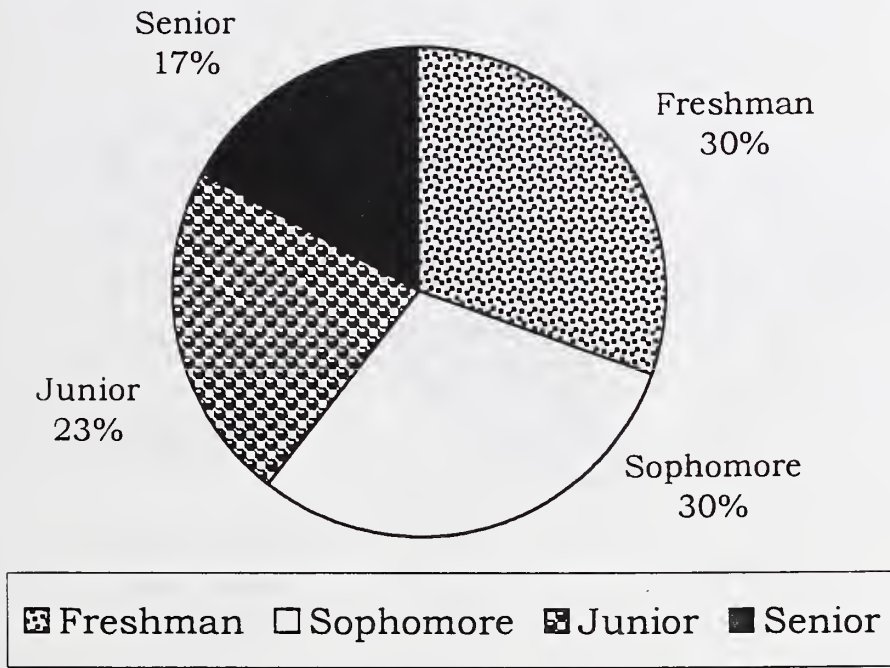


Chart 1.2 General Characteristic of Sample According to Gender and Ethnicity

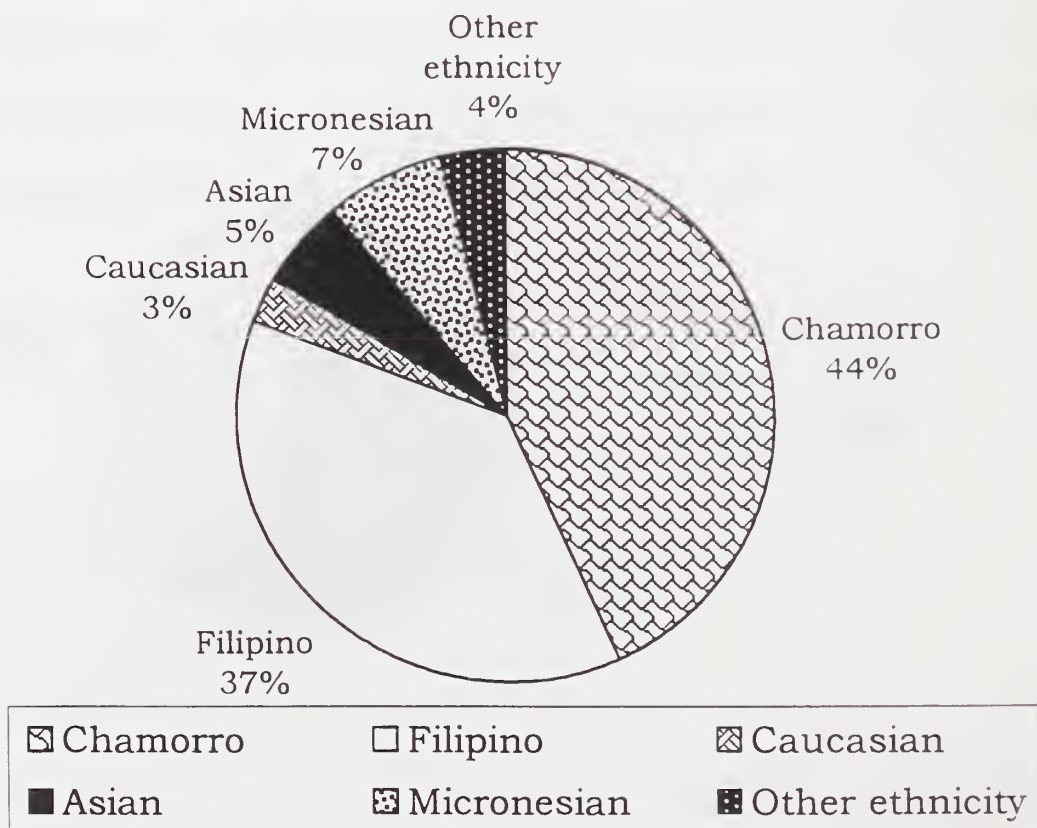
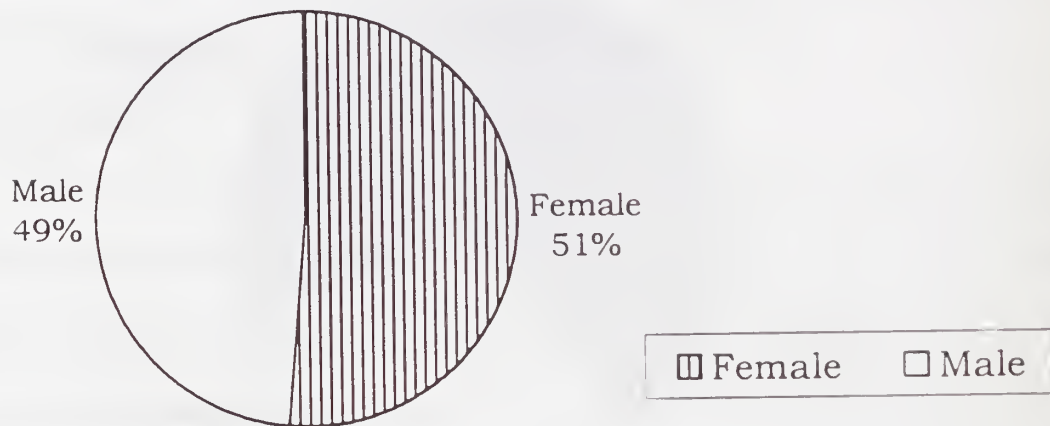
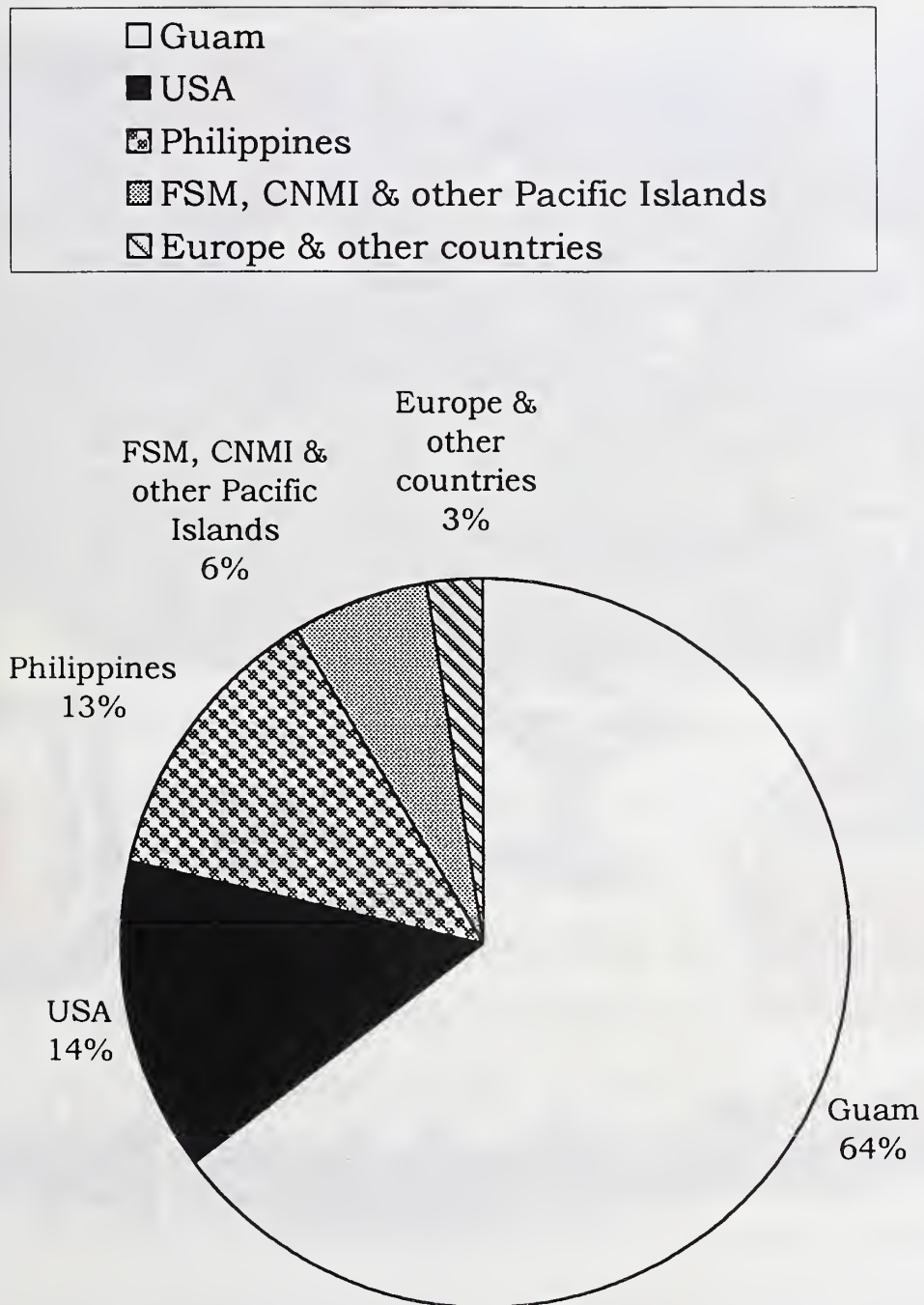
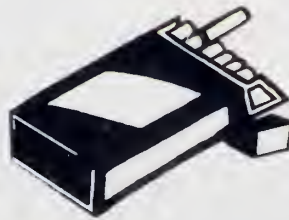


Chart 1.3 Place of Birth Frequency





# In pursuit of happiness on Guam



Health and substance (ab)use



## Section 2

### HEALTH AND SUBSTANCE USE

As individual members of our collective island society we want our children to lead happy, healthy lives that are as free of illness and mental stress or depression as possible. We hope they have excellent physical health and feel mentally alert. Yet in the very pursuit of life many high school students engage in behaviors which place them at risk for serious health problems, or which intensify illnesses and mental stresses. For example, more children become sexually active on Guam before they are age 13 years old than youth in other places such as Hawaii, American Samoa, or the general youth population across the United States (CDC, 1998). Schools, village groups, churches, the health care system, the media, business leaders, community associations, and public agencies must work together to help students develop the skills and find the support they need to avoid health risk behaviors.

In this opening section we looked at student perceptions of their general health, and feelings about physical or mental health problems, and the association these measures of health have with the use of various drug substances. We asked students to think about health problems – physical or mental – which may have been troubling them during the week prior to the survey. The Questionnaire then asked: (a) if they felt their health was *Excellent*, *Good*, or *Fair/Poor*, followed by (b) if they felt they enjoyed *Good Mental and Physical Health*, had some *Physical Health*

*Problems Only*, or had some *Mental Health Problems* during the previous week. A relevant issue that needs to be clarified in this discussion is the general level of use for each drug substance, and a rank-order comparison of which substances are (or are not) drugs of choice among youth on Guam. We limited the analyses here to whether or not students had *Ever Used* the substances in their lifetime. More detailed analyses of use patterns are presented in the following sections describing data for each particular drug substance.

Chart 2.1 graphically displays the distribution of student responses to the first question about Self-assessed Physical/Mental Health. Half of the sample (49.3 percent) indicated that they feel their health is *Good*, while one-fourth (25.6 percent) felt their health to be *Excellent*, and the remaining one-fourth (25.1 percent) rated their health over the previous week to be *Fair* or *Poor*. This is presented numerically in Table 2.1, along with an examination of differences in Self-assessed Physical/Mental Health by selected demographic and social traits. We found that among Guam high school students males were significantly more likely than females to feel in excellent health (30.3 percent versus 21.1 percent), with more females (27.9 percent) reporting fair/poor health (males = 22.2 percent).

The differences by age and grade level were not statistically significant, and the social measures of talking with adults, and living arrangements also did not reveal statistically significant differences.

However, School Region was found to differentiate Self-assessed Physical/Mental Health. Students at schools in the Northern villages were significantly more likely than those in Southern villages to feel in excellent health (33.0 percent versus 18.6 percent), with more students in Southern schools (28.6 percent) reporting fair/poor health (Northern schools = 23.8 percent).

The next measure, *Self-assessed physical and mental well-being* is graphically presented in Chart 2.2, and differentials by demographic and social traits appear in Table 2.2. Almost two-thirds of students (65.1 percent) felt they enjoyed Good Physical and Mental Health, and about one-out-of-seven (15.8 percent) reported having physical problems only. But about one-fifth reported either having some sense of a mental health problem (11 percent) or having both physical and mental health problems (8 percent). We found significant differences by age and grade level – which supports our confidence that this measure is indicative of life stress and social problems associated with “mental” health. Data were collected in the final weeks of the school year, which should be expected to be a stressful and more socially tense time for graduating seniors and older students. The data reveal that greater concentrations of older students, 17-20 years of age (26.2 percent) and seniors (31.5 percent), reported mental health problems.

Our confidence in this measure was also supported by the fact that another social trait found to significantly differentiate feelings of mental

health problems was whether or not students talk about problems with one or more adults. We asked students if they ever talk about personal problems with an adult family member – which would indicate family communication, and supportive interactions. Consistent with expectations, those who talk about problems with adult family members were less likely to report mental health problems (17.1 percent) than those who do not (24.9 percent).

In summary, we found that high school students on Guam did not report any unusual level of problems with physical and mental health. Half viewed their general health as “good” with equal proportions split between feeling “excellent” and feeling “fair/poor.” In terms of perceived mental health problems, again, a majority of students felt good, but some experienced physical health problems, and one-in-five (about 20 percent) felt they had some form of mental health problem in the week prior to the survey.

Our interest in student perceptions of their health is that engaging in the use of various drug substances places one at-risk of health problems, and acute health problems can be complicated by abusive drug use. Although the advertising image of a person drinking alcohol or smoking a cigarette is the successful pursuit of happiness – drunk driving kills more teenagers than heroin, and more teenagers risk life through addiction to nicotine than risk HIV/AIDS infection through injection needle use.



We examined trends in substance use on Guam by comparing the national Youth Risk Behavior Surveillance data for Guam in 1995 and 1997 (CDC, 1996 and 1998). Table 2.3 presents these data for those drug substances comparable to measures in the present study – Alcohol, Tobacco, and Marijuana, plus selected “other” drugs that the CDC studies lump together in a single general question. There are several differences between the CDC’s population samples and that of the present study. The most notable is that the Youth Risk Behavior Surveys are collected by Guam’s Department of Education within the Public School System; whereas, the present study consists of a proportionately representative sample of both private and public schools. Moreover, the sample of the present study is much larger than those for Guam’s CDC Youth Risk Behavior Studies, which collect the bare minimum needed for a  $\pm 5$  percent confidence interval. That is, statistically, a percentage found within the survey sample is within 5 percentage points of the *True Percentage* which would be found from a complete census of everyone in the targeted population. The present study’s sample of 773 cases has a confidence interval of  $\pm 3$  percent.

Regardless, the CDC Youth Risk Behavior Studies show that **substance use of alcohol, marijuana, and “other” substances has increased from 1995 to 1997**. The present study’s measures of alcohol and marijuana use are comparable to the CDC’s measures for 1997. Our more specific measures of particular drug substances included in the

CDC's general "other" grouping, are within a comparable range. The one substantial difference is tobacco use. However, the CDC data show a downward trend of smoking cigarettes among Guam's youth (from 85 percent to 79 percent). We analyzed differences between "private school" students in our sample to the "public school" students and found a significant difference (71% versus 60% respectively.) Given that the *True Population* percent for public school students in the present 1998 study could be as high as 74% and the CDC's 1997 study's *True Population* percent could be as low as 74% -- we conclude that the difference is purely statistical probability and sample differences. **The conclusion that holds is that tobacco use is on the decline among Guam high school youth, and whereas it was the number one drug of choice in 1995, it has dropped to second place in 1998.**

The CDC's measures of "other drug substances" also show an increase among Guam high school youth. In the present study, we found that the more "preferred" drugs among these other substances are *Inhalants* (16.4 percent) and crystal d-methamphetamine hydrochloride -- commonly called "Ice" (13.2 percent). Inhalants include easily-obtained household items such as glue, paint solvents, charcoal starter fluid, nail polish remover, frying pan coating, and pressurized butane gas refill bottles. Being inexpensive, legal and easily obtainable it is not hard to understand why this form of getting a "happy high" is more prevalent than costly and legally controlled drugs such as sedatives (7.7 percent),

stimulants (6.4 percent), hallucinogens (6.3 percent), and various forms of cocaine and heroin (see Chart 2.3). Perhaps it should be more disconcerting that Ice which has exploded as the recreational illegal drug of choice among adults (see GPD arrest data in Table 1a.1, page 9), is at this same level of use by about one-out-of-every-six or seven youth attending high schools. As pointed out in the Methods section, this data is biased to students enrolled in school at the end of the academic year. We should expect that including those teenage youth expelled or simply truant in the last weeks of school would very likely push this level upward.

In support of this clarification, Chart 2.4 displays differences between male and female youth. Males were found to report higher use-rates, especially for marijuana (59 percent versus 39 percent respectively) and Ice (17 percent versus 10 percent respectively).

We obtained another perspective of which substances are drugs of choice by asking whether or not students would use a particular substance if it was offered to them when they were with people they know. This is displayed in Chart 2.5. There may be some community satisfaction in seeing that over three-fourths of students (83 percent) say they would definitely not use Ice if offered. However, in the pursuit of happiness and coping with life stresses, student aversion to more popular substances drops.

The reason people are concerned about substance use is because of the consequences it has upon a healthy life. Table 2.4 presents the association of substance use with student self-assessed mental well-being. **We found that drug use was significantly associated with reporting mental health problems.** Among students reporting they enjoyed good physical and mental health, only 70 percent indicated ever using alcohol. Yet among those who reported feeling some mental health problems in the prior week, 85 percent said they used alcohol (see top row of Table 2.4). **This same pattern dominates the full range of substance use, where those who reported feeling some mental health problems are more likely to use drug substances than those who feel in good health.**

Previous research shows drug use to be associated with belonging to non-intact families and the absence of positive expectations that often result from strong relationships with family members and other adults such as teachers, sport coaches, and youth group leaders. Indeed, we noted earlier that students who said they did not talk about problems with adults were more likely to report having mental health problems (see Table 2.2). In the present study we found that use of several different drug substances to be associated with whether or not a student's parental family was intact (see Table 2.5). Examining the top four drugs of choice, the study found that students who lived with "*Both Parents*" were less likely to have ever tried tobacco (65.4 percent) or marijuana (45.3 percent) compared to those with other living arrangements (77.3 percent used



tobacco; 54.4 percent used marijuana). This pattern appears for most drug substances, and significant differences were found for the use of analgesics, stimulants, and cocaine. Chart 2.6 displays a clarification of student living arrangements in the study sample, and over half (61 percent) are part of intact families while about one-third reside in other types of families.

Finally, we were asked by teachers and youth groups attending the Pacific Rim "War On Ice" Seminar sponsored by the Guam Police Department and U.S. Department of Justice, if we would examine for differences by regional areas. (The seminar was supported by the Safe Streets Foundation, and held at the Guam Hyatt Regency Hotel on August 18-21, 1998). The data analyses are presented in Table 2.6, which reveal that students attending high schools in the Southern village region reported higher levels of use for alcohol, tobacco, marijuana, Ice and stimulants than others. This may account for why students at schools in the Southern villages were more likely to say they were in only fair/poor health than those in Northern villages (see Table 2.1).

In summary, Guam's high school students did not report any unusual level of problems with physical and mental health. In terms of perceived mental health problems, again, a majority of students reported feeling good, but some experienced physical health problems, and one-in-five (about 20 percent) felt they had some form of mental health problem in the week prior to the survey. Our interest in student perceptions of

their health is that engaging in the use of various drug substances places one at risk of health problems. The U.S. CDC Youth Risk Behavior Studies show that substance use of alcohol, marijuana, and “other” substances has increased on Guam from 1995 to 1997, and that tobacco use is on the decline. Levels of substance use found in the present (1998) study rank-order a listing of drugs of choice among high school youth as being: 1. Alcohol, 2. Tobacco, 3. Marijuana, 4. Inhalants, 5. Ice, 6. Analgesics, 7. Sedatives, 8. Stimulants, 9. Hallucinogens, 10. Cocaine, 11. Crack, 12. Heroin.

Males were found to report higher use-rates than females. We also found that drug use was associated with mental health problems and the pattern fits a wide range of drug substances, where those who reported feeling some mental health problems were more likely to use drug substances than those who reported good health.

Table 2.1 Self-Assessed Physical/Mental Health Among Guam High School Youth by Demographic Traits

	Self-Assessed Physical/Mental Health			
	Excellent	Good	Fair/poor	Total
Total Sample	25.6%	49.3%	25.1%	100%(n=745)
<u>Gender</u>				
Male	30.3%	47.5%	22.2%	100%(n=360)
Female	21.1%	51.0%	27.9%	100%(n=384)
<u>Age (Years)</u>				
14-15	28.5%	48.8%	22.7%	100%(n=291)
16	23.4%	50.9%	25.7%	100%(n=214)
17-20	23.0%	49.1%	27.8%	100%(n=230)
<u>Grade Level</u>				
Freshman	28.6%	49.8%	21.6%	100%(n=227)
Sophomore	25.3%	52.5%	22.2%	100%(n=221)
Junior	25.6%	45.2%	29.2%	100%(n=168)
Senior	20.5%	48.8%	30.7%	100%(n=127)
<u>School Region*</u>				
Northern	33.0%	43.2%	23.8%	100%(n=324)
Central	20.8%	54.6%	24.6%	100%(n=260)
Southern	18.6%	52.8%	28.6%	100%(n=161)
<u>Talks problem with adults</u>				
Yes	24.7%	51.0%	24.3%	100%(n=547)
No	28.3%	44.0%	27.3%	100%(n=198)
<u>Student's living arrangements</u>				
Both Parents	27.9%	48.7%	23.4%	100%(n=470)
Other**	21.8%	50.2%	28.0%	100%(n=275)

Notes:

\* Schools located in Northern villages (Yigo, Tamuning, Dededo), Central villages (Barrigada, Mangilao, Mongmong, Toto-Maite, Agana, Agana Heights, Sinajana, Ordot-Chalan Pago, Asan) or Southern villages (Yona, Piti, Agat, Santa Rita, Talofofo, Inarajan, Merizo, Umatac).

\*\* "Other" living arrangements include "Mother/Father only", "Parent & Stepparent", "Grandparent/other relative", and "Guardian/other adult."

Table 2.2 Self-Assessed Physical/Mental Well-being Among Guam High School Youth by Demographic Traits

	Self-Assessed Physical/Mental Health			Total
	Good Health	Physical Problems Only	Mental Health Problems	
Total Sample	65.1%	15.8%	19.1%	100%(n=742)
<u>Gender</u>				
Male	67.0%	15.1%	17.9%	100%(n=358)
Female	63.2%	16.4%	20.4%	100%(n=383)
<u>Age (Years)</u>				
14-15	70.1%	16.0%	13.9%	100%(n=288)
16	67.0%	14.4%	18.6%	100%(n=215)
17-20	56.8%	17.0%	26.2%	100%(n=229)
<u>Grade Level</u>				
Freshman	68.6%	15.5%	15.9%	100%(n=226)
Sophomore	70.0%	15.0%	15.0%	100%(n=220)
Junior	62.3%	18.0%	19.8%	100%(n=167)
Senior	53.5%	15.0%	31.5%	100%(n=127)
<u>School Region*</u>				
Northern	65.7%	13.3%	21.0%	100%(n=324)
Central	63.3%	19.3%	17.4%	100%(n=259)
Southern	66.7%	15.1%	18.2%	100%(n=159)
<u>Talks problem with adults</u>				
Yes	67.2%	15.7%	17.1%	100%(n=549)
No	59.1%	16.1%	24.9%	100%(n=193)
<u>Students living arrangements</u>				
Both Parents	66.5%	15.2%	18.2%	100%(n=466)
Other**	62.7%	16.7%	20.7%	100%(n=276)

Notes:

\* Schools located in Northern villages (Yigo, Tamuning, Dededo), Central villages (Barrigada, Mangilao, Mongmong, Toto-Maite, Agana, Agana Heights, Sinajana, Ordot-Chalan Pago, Asan) or Southern villages (Yona, Piti, Agat, Santa Rita, Talofofo, Inarajan, Merizo, Umatac).

\*\* "Other" living arrangements include "Mother/Father only", "Parent & Stepparent", "Grandparent/other relative", and "Guardian/other adult."



Table 2.3 Trends In Substance Use Comparing Several Studies of Guam High School Youth 1995 to 1998

Substances Used in a Lifetime	Youth Risk Behavior Studies*		UOG SDFSC Study
	1995	1997	1998
Alcohol	66.5%	74.1%	74.3%
Tobacco	84.9%	79.1%	69.8%
Marijuana	39.8%	48.3%	48.7%
<u>Other drugs</u>	12.9%	17.2%	
Inhalants	n.a.	n.a.	16.4%
Ice	n.a.	n.a.	13.2%
Analgesics	n.a.	n.a.	7.9%
Sedatives	n.a.	n.a.	7.7%
Stimulants	n.a.	n.a.	6.4%
Hallucinogens	n.a.	n.a.	6.3%
Heroin	n.a.	n.a.	2.6%

\* Sources: U.S. Center for Disease Control. 1996 and 1998.

\*\* The "other drugs" category consists of responses to the listing of specific substances, but which the CDC reported analyses combined into a singular lump-summed measure.

Table 2.4 The Association of Substance Use With Self-Assessed Physical and Mental Well-being

	% "Yes", have ever used substance			Chi-square Significance
	Good Health	Physical Problems Only	Mental Health Problems	
Alcohol	70.2	75.9	85.2	(0.02)
Tobacco	66.5	73.9	75.7	(N.S.)
Marijuana	43.3	53.3	61.1	(0.001)
Inhalants	12.4	23.4	26.7	(0.001)
Ice	11.3	15.8	19.8	(0.05)
Analgesics	5.1	12.5	13.2	(0.001)
Sedatives	4.7	10.8	15.6	(0.001)
Stimulants	4.4	11.7	10.2	(0.004)
Hallucinogens	5.5	7.2	8.1	(N.S.)
Cocaine	3.0	2.7	7.4	(0.05)
"Crack"	2.1	0.9	6.6	(0.008)
Heroin	2.1	1.8	4.4	(N.S)

Table 2.5 The Association of Substance Use with Stability of Family Unit

	% "Yes", have used substance		Chi-Square Significance
	Respondent Lives With Both Parents	Others	
Alcohol	72.3	77.8	(N.S.)
Tobacco	65.4	77.3	(.001)
Marijuana	45.3	54.4	(.02)
Inhalants	14.7	19.3	(N.S.)
Ice	11.8	15.5	(N.S.)
Analgesics	5.7	11.6	(.004)
Sedatives	6.4	9.8	(N.S.)
Stimulants	5.1	8.7	(.05)
Hallucinogens	5.1	8.3	(N.S.)
Cocaine	2.6	5.4	(.04)
"Crack"	2.6	3.3	(N.S.)
Heroin	2.6	2.5	(N.S.)

Table 2.6 The Association of Substance Use With Guam Regional Areas

	% "Yes", have used substance			Chi-Square Significance
	Northern Schools	Central Schools	Southern Schools	
Alcohol	71.5	72.5	83.1	(0.02)
Tobacco	65.2	70.1	78.3	(0.01)
Marijuana	41.9	47.8	63.9	(0.001)
Inhalants	17.3	13.8	18.8	(N.S.)
Ice	12.2	10.1	20.3	(0.01)
Analgesics	7.0	8.4	9.0	(N.S.)
Sedatives	6.7	7.6	9.7	(N.S.)
Stimulants	7.6	3.4	9.0	(0.04)
Hallucinogens	5.5	5.3	9.7	(N.S.)
Cocaine	4.3	1.9	5.2	(N.S.)
"Crack"	3.1	1.5	4.5	(N.S.)
Heroin	3.4	1.5	2.6	(N.S.)

Chart 2.1 Self-Assessed Physical Health Among Guam High School Youth

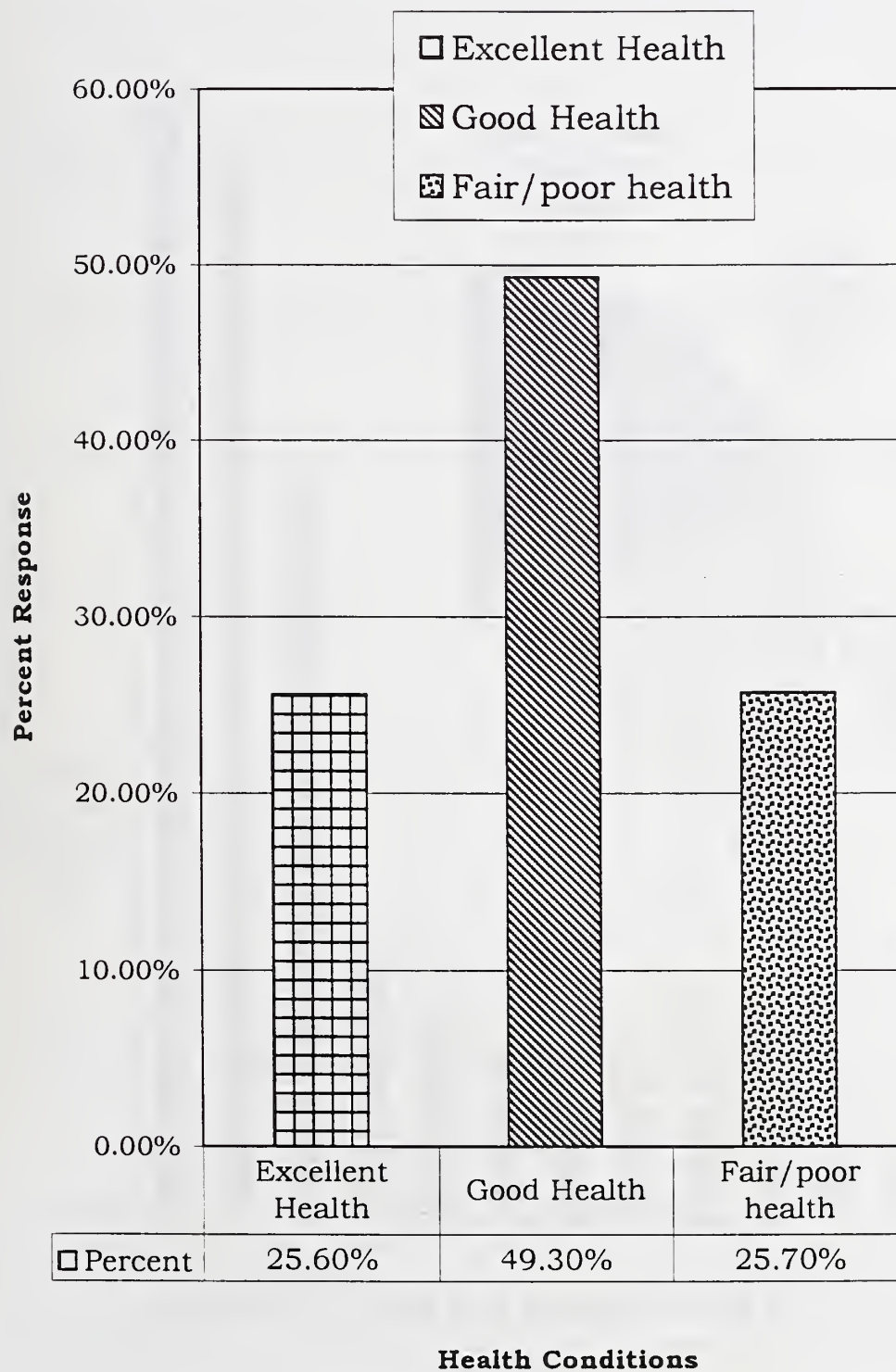
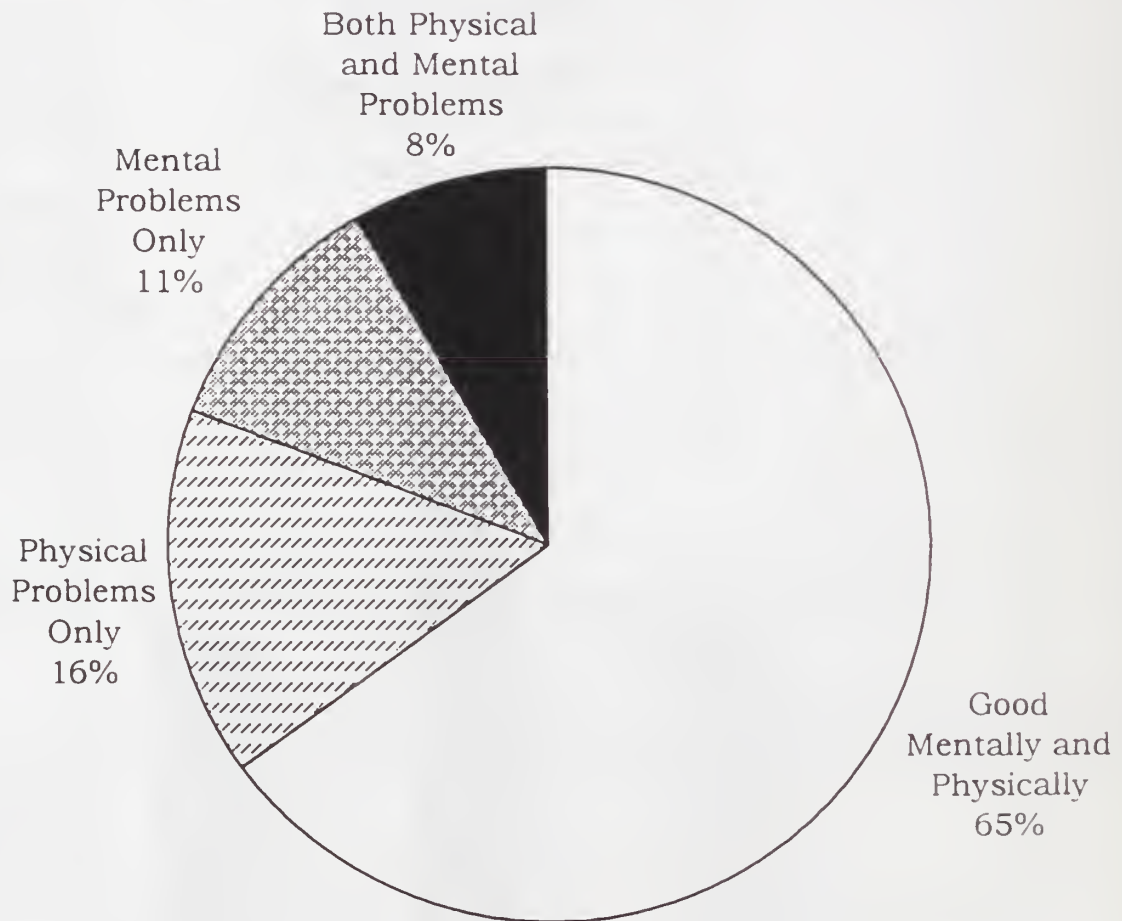


Chart 2.2 Physical and Mental Well-Being



- ☐ Good Mentally and Physically
- ☒ Physical Problems Only
- ☒ Mental Problems Only
- ☒ Both Physical and Mental Problems



Chart 2.3 Percent Response for the Following Substances

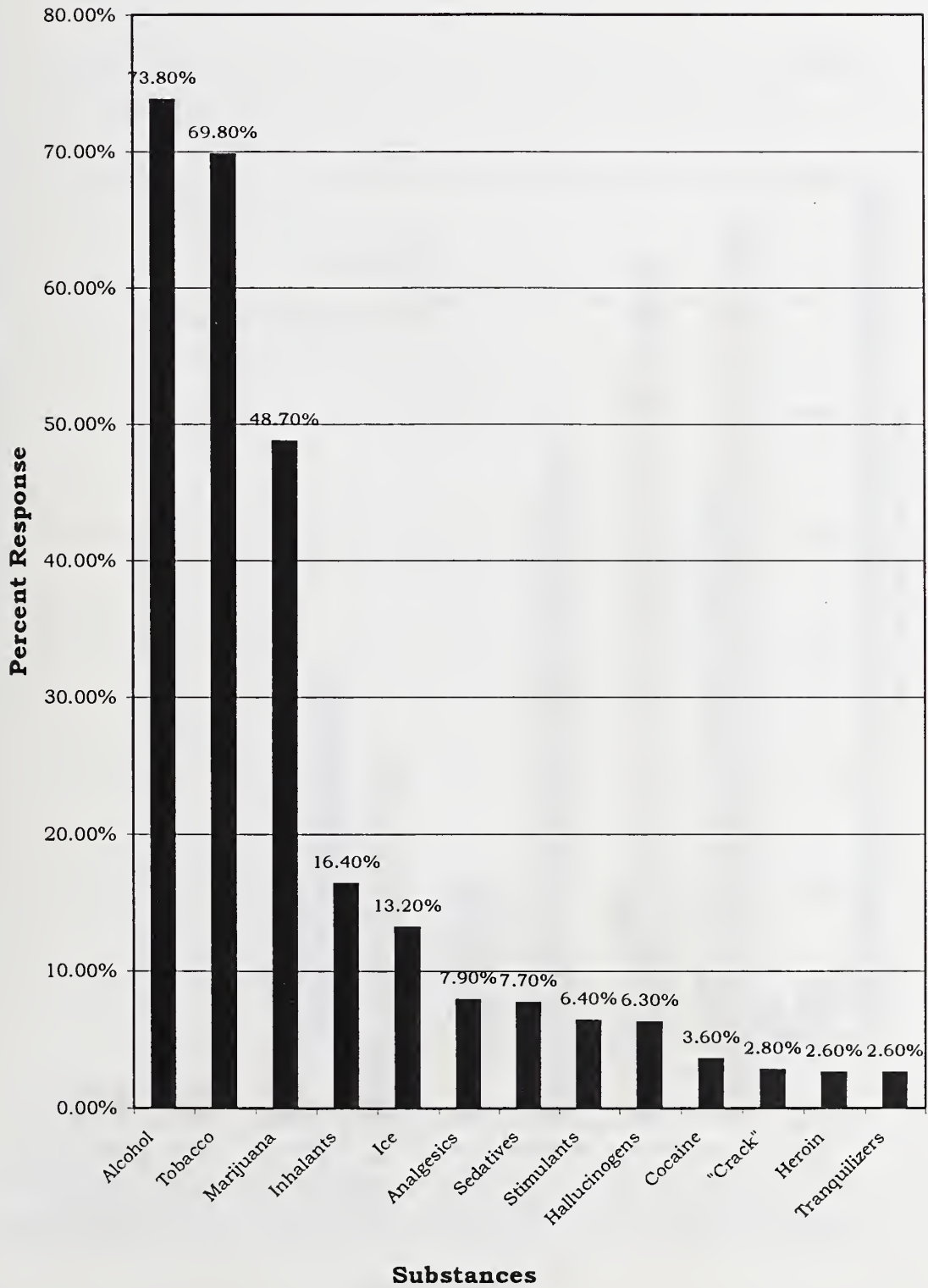


Chart 2.4 Ranked Summary of Substance Use by Gender

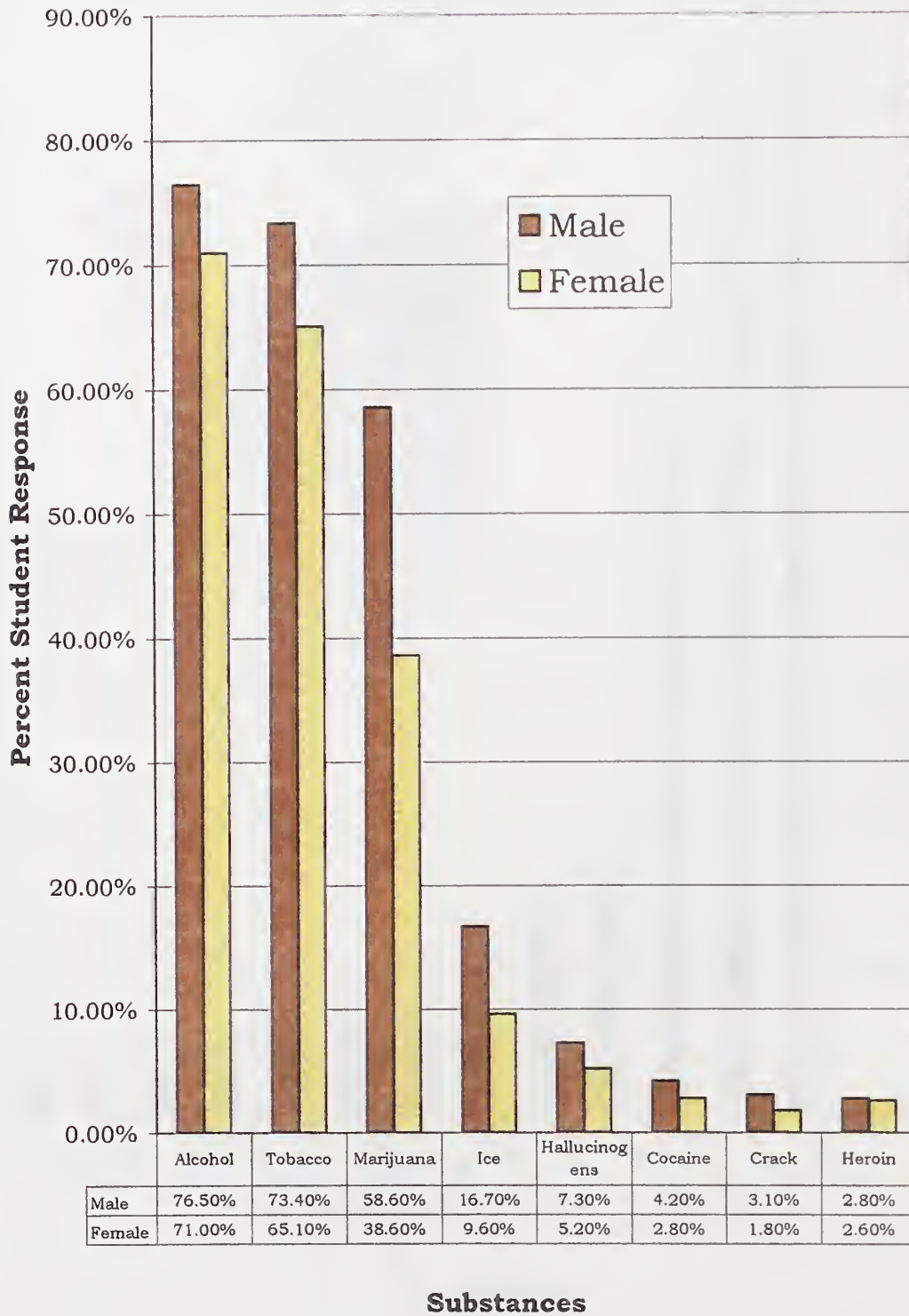


Chart 2.5 Student Response for Alcohol, Tobacco, Marijuana and Ice

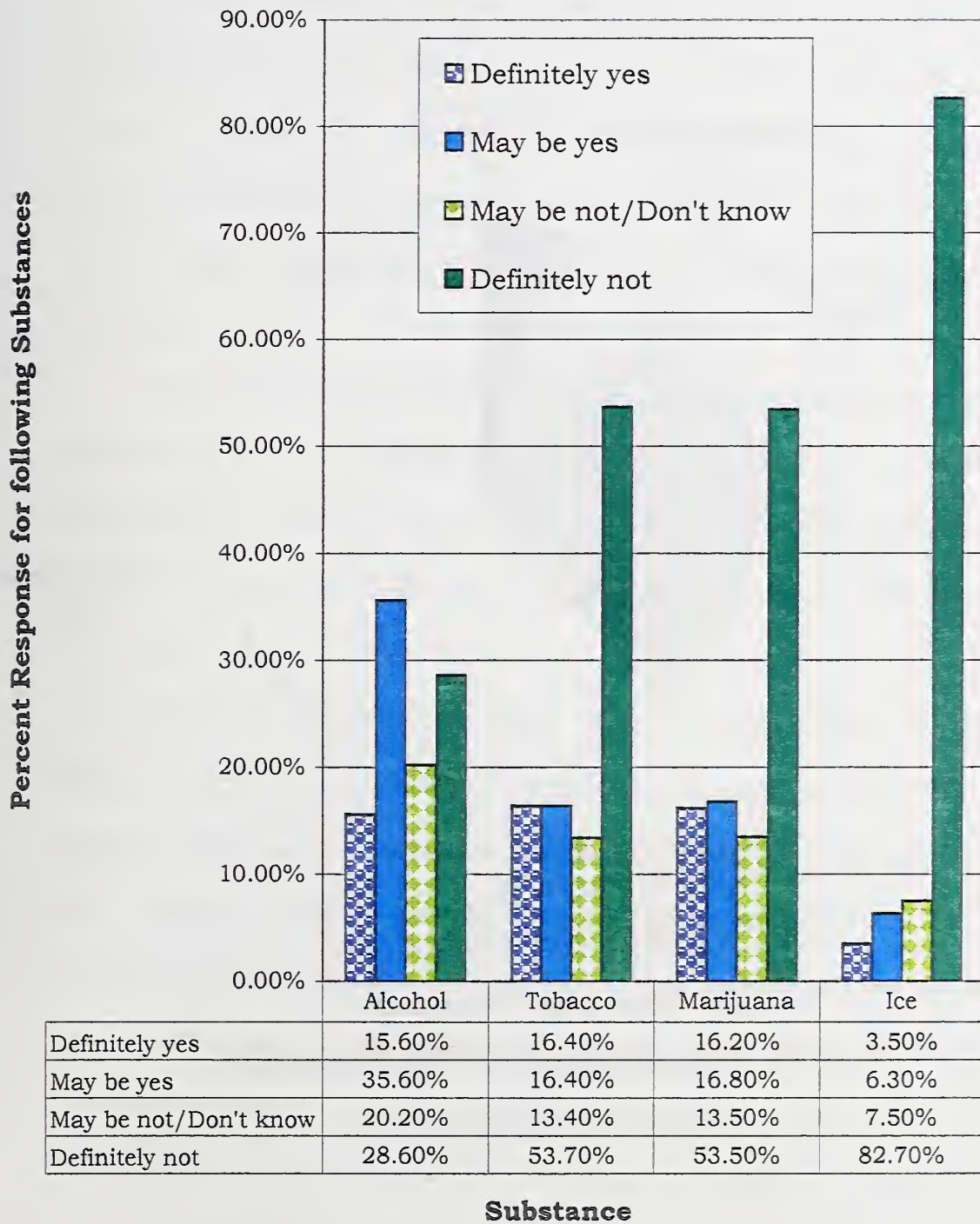
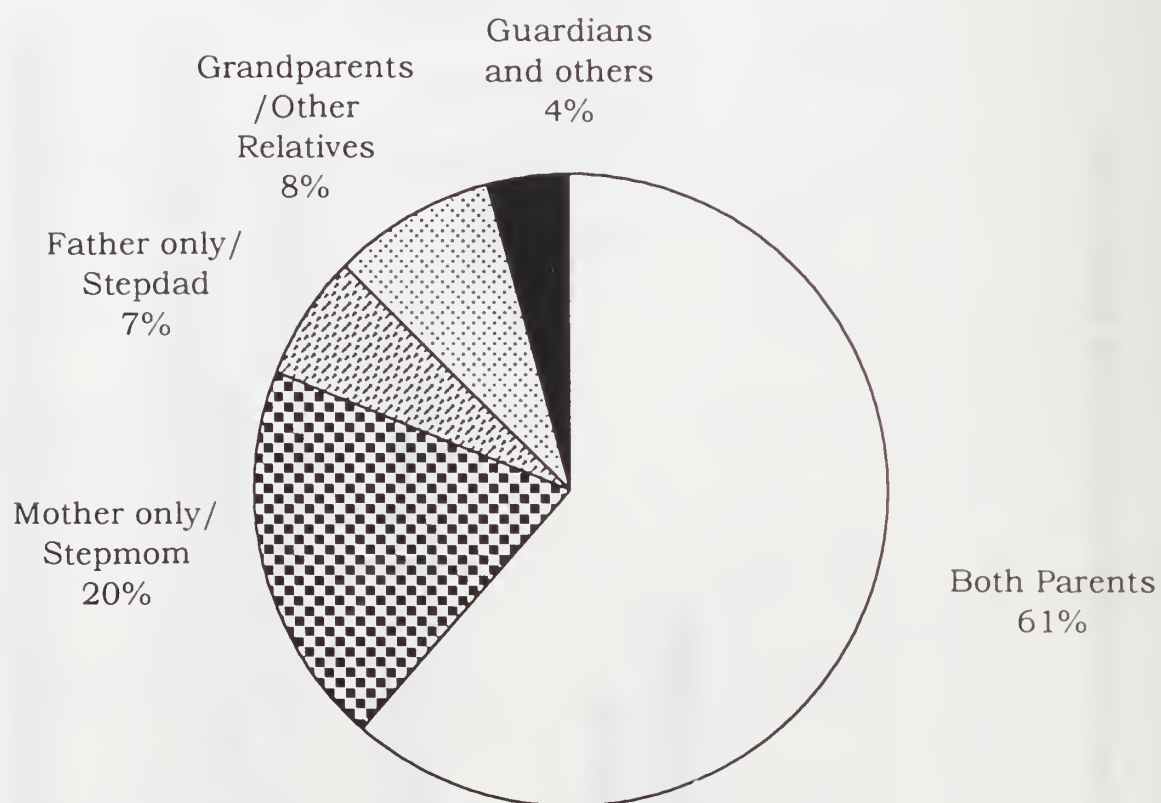


Chart 2.6 Student Living Arrangements



- Both Parents
- ▣ Mother only/ Stepmom
- ▤ Father only/ Stepdad
- ▥ Grandparents/Other Relatives
- Guardians and others



### Section 3

#### ALCOHOL

The drug used in the “recreational” pursuit of happiness by the largest number of teenagers on Guam and in the United States is not marijuana, but alcohol (see Bachman and Wallace, 1991; CDC, 1996, 1998). By public health standards and morbidity statistics, the ***real*** drug problem on Guam is the use and abuse of alcohol and cigarettes. Alcohol is the ***numero uno***, most prevalent drug of choice among Guam high school youth.

Over half of Guam high school youth (51.2 percent) gave a positive-sided response (i.e., “definitely” or “maybe” Yes) that they would probably consume an alcoholic drink if one were offered to them while among a group of friends (see Table 3.1 and Chart 3.1). This is not surprising when one looks at Tables 3.2 and 3.3, which present data on the ages when students report being offered, and first consuming, an alcoholic drink. Whereas only about one-third of U.S. high school youth (31.1 percent) reported having a first drink before age 13 years (CDC 1998), 40.3 percent of Guam students reported this, and half of these (20.9 percent) actually reported having had their first drink at age 10 years or less. There are no statistically significant differences by gender, and although a slightly greater percentage of males reported being offered a drink before age 10 years, slightly greater percentages of females reported

being offered and then having first consumed a drink between ages 11-12 years. This is most clearly presented graphically in Charts 3.2 and 3.3.

Table 3.1 Would Respondent Use Alcohol if Offered

Response	Male	Female	Total Sample
Definitely yes	15.9%	15.2%	15.6%
Maybe yes	36.0	35.2	35.6
Maybe not	14.2	10.6	12.3
Definitely not	27.4	29.6	28.6
Don't know	6.5	9.4	7.9
Total	372	395	773

Table 3.2 Age First Offered Alcohol

Age	Male	Female	Total Sample
10 years and younger	27.9%	20.4%	24.2%
11 - 12 years	14.9	21.1	17.8
13 - 14 years	34.9	34.9	34.8
15 - 16 years	20.0	21.1	20.7
17 - 18 years	2.2	2.6	2.4
Total	315	304	773

Table 3.3 Age First Consumed Alcohol

Age	Male	Female	Total Sample
10 years and younger	23.4%	18.3%	20.9%
11 - 12 years	15.7	23.2	19.4
13 - 14 years	36.8	34.2	35.4
15 - 16 years	21.8	20.9	21.5
17 - 18 years	2.3	3.4	2.9
Total	261	263	526

This same pattern by gender appears also in Table 3.4 “Age First Intoxicated” and is illustrated in Chart 3.4. More girls than boys reported becoming intoxicated before age 10 years (4.1 versus 2.9 percent), and also between ages 11-12 years (8.1 versus 6.4 percent). However, males make up for this small and minor difference in sheer numbers, since more of them drink (i.e., 77 percent of males versus 71 percent of females; Chart 2.4 page 36), and more of them have begun to get intoxicated by age 14 years (see Table 3.4; 52.1 percent of males versus 45.5 percent of females). Of course intoxication is a consequence of “how many” drinks one has and, as presented in Table 3.6, males report have more alcoholic drinks per drinking occasion than females (4.5 drinks versus 2.9 drinks respectively).

Before ending these focused analyses on alcohol, we also examined the mean number of drinks consumed by ethnicity (see Chart 3.7). As can be seen clearly in this graphic illustration, ethnic differences are actually between males, while females reported similar numbers across the various ethnic groups (i.e., 2.6, 2.7, 3.1, 3.2 which all fall within a range of 0.6 points). Micronesian males top the ranking with a six-pack average per occasion, but are closely followed by Chamorro males (4.8 drinks) and Filipino males (4.2 drinks). There were no statistically significant differences by gender neither among Caucasian nor among Asian males and females. Yet the ethnic categories as cultural groups show a

difference with Asians having a mean of one drink less per session (2.4 drinks) than Caucasians (3.4 drinks).

Table 3.4 Age First Intoxicated

Age	Male	Female	Total Sample
10 years and younger	2.9%	4.1%	3.7%
11 - 12 years	6.4	8.1	7.1
13 - 14 years	42.8	33.3	38.7
15 - 16 years	39.9	43.9	41.4
17 - 18 years	8.1	10.6	9.1
Total	173	123	476

Table 3.5 Mean Age of Respondents for First Offered Alcohol, First Used Alcohol, and Age First Intoxicated for Gender and Total Sample

Variable	Male	Female	Total Sample
Age offered	11.9	12.5	12.2
Age first drink	12.3	12.6	12.4
Age intoxicated	14.3	14.4	14.4

Table 3.6 Average Number of Alcoholic Drinks Consumed by Gender of Respondent per Drinking Occasion

	Male	Female
Mean average	4.5	2.9
Standard deviation	3.5	2.3
Total	232	221



Chart 3.1 Would Respondent Use Alcohol if Offered

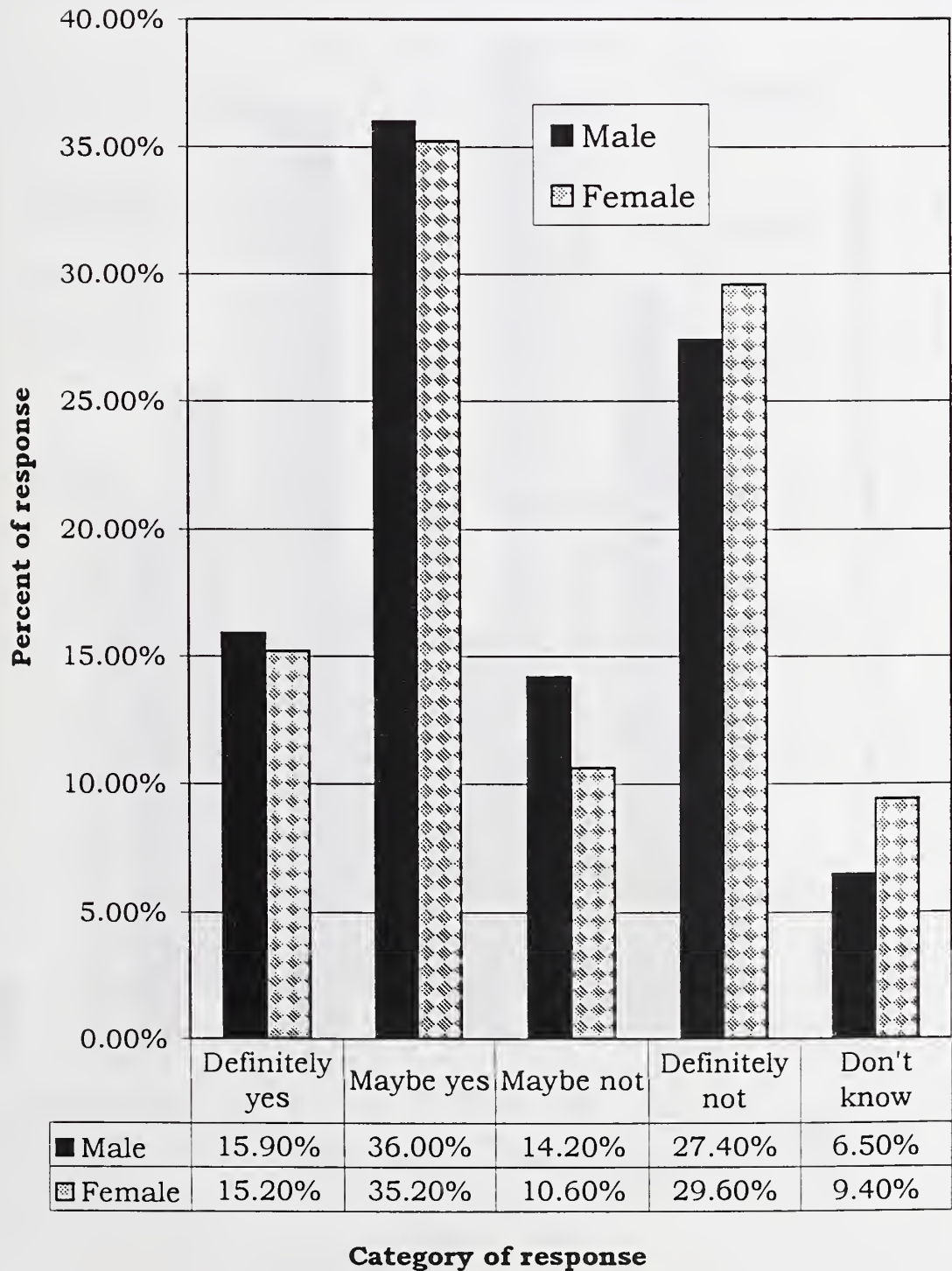


Chart 3.2 Age First Offered Alcohol

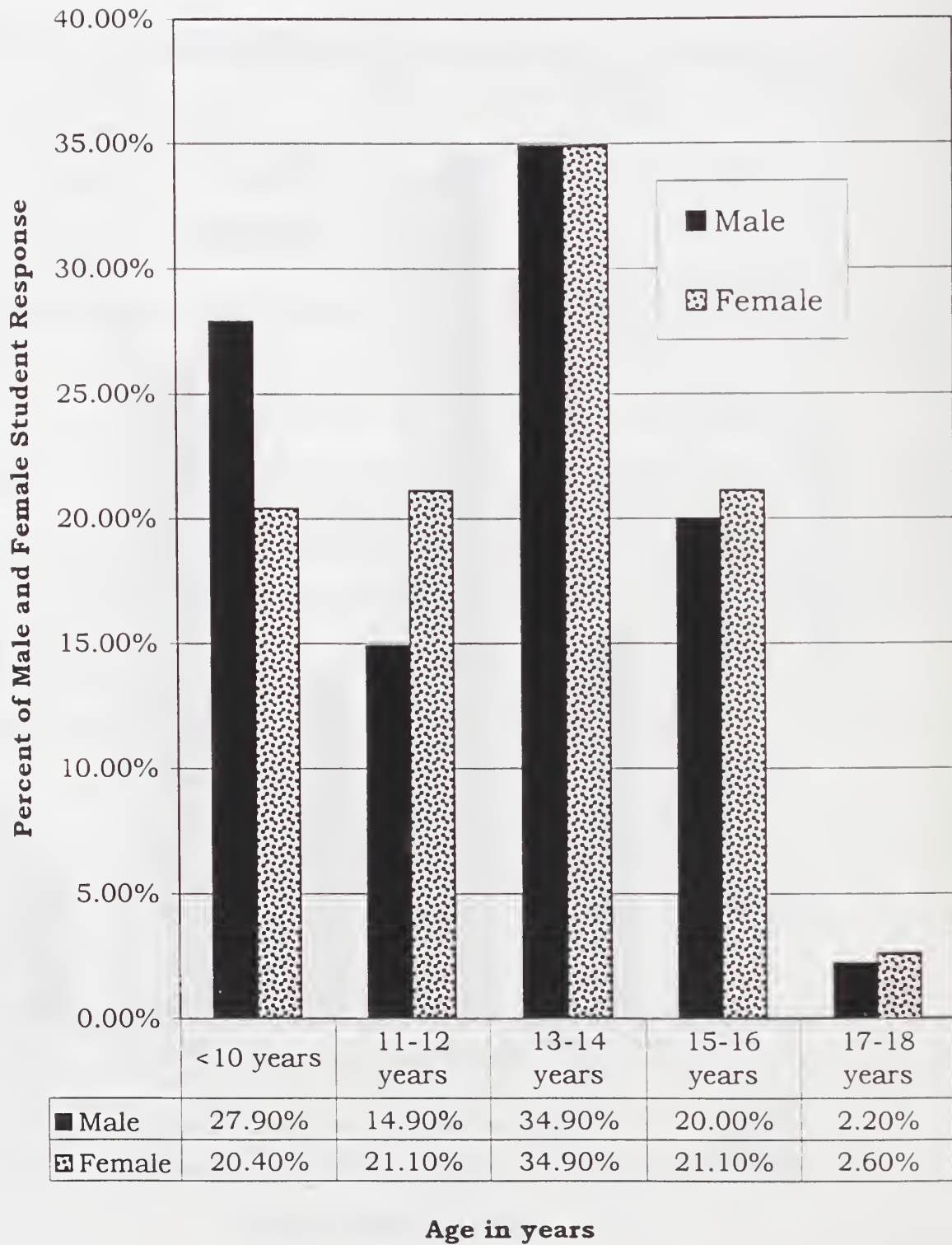
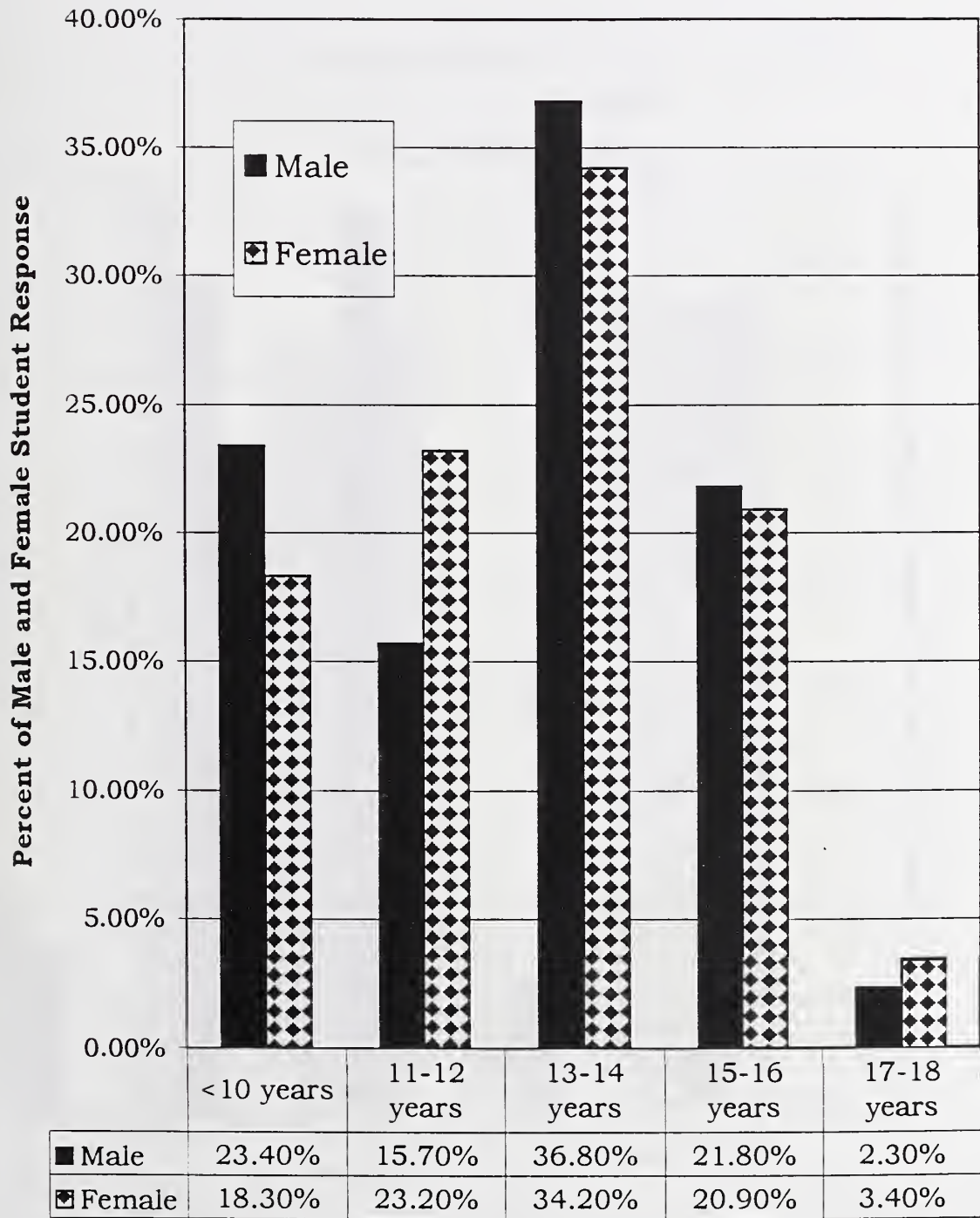


Chart 3.3 Age First Consumed Alcohol



**Age in Years**

Chart 3.4 Age First Intoxicated

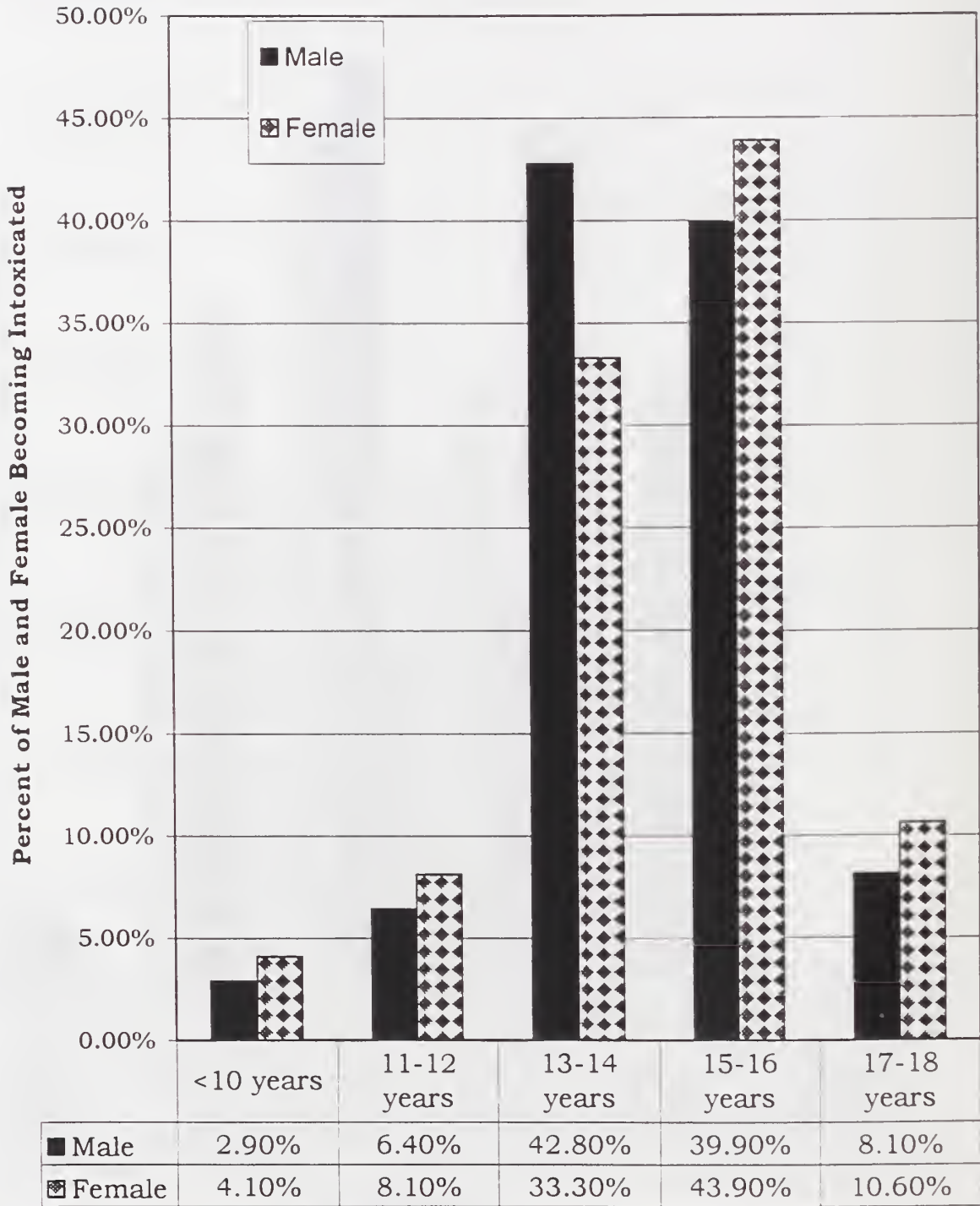




Chart 3.5 Mean Age of Respondents Who Were First Offered Alcohol, First Drank Alcohol and First Intoxicated

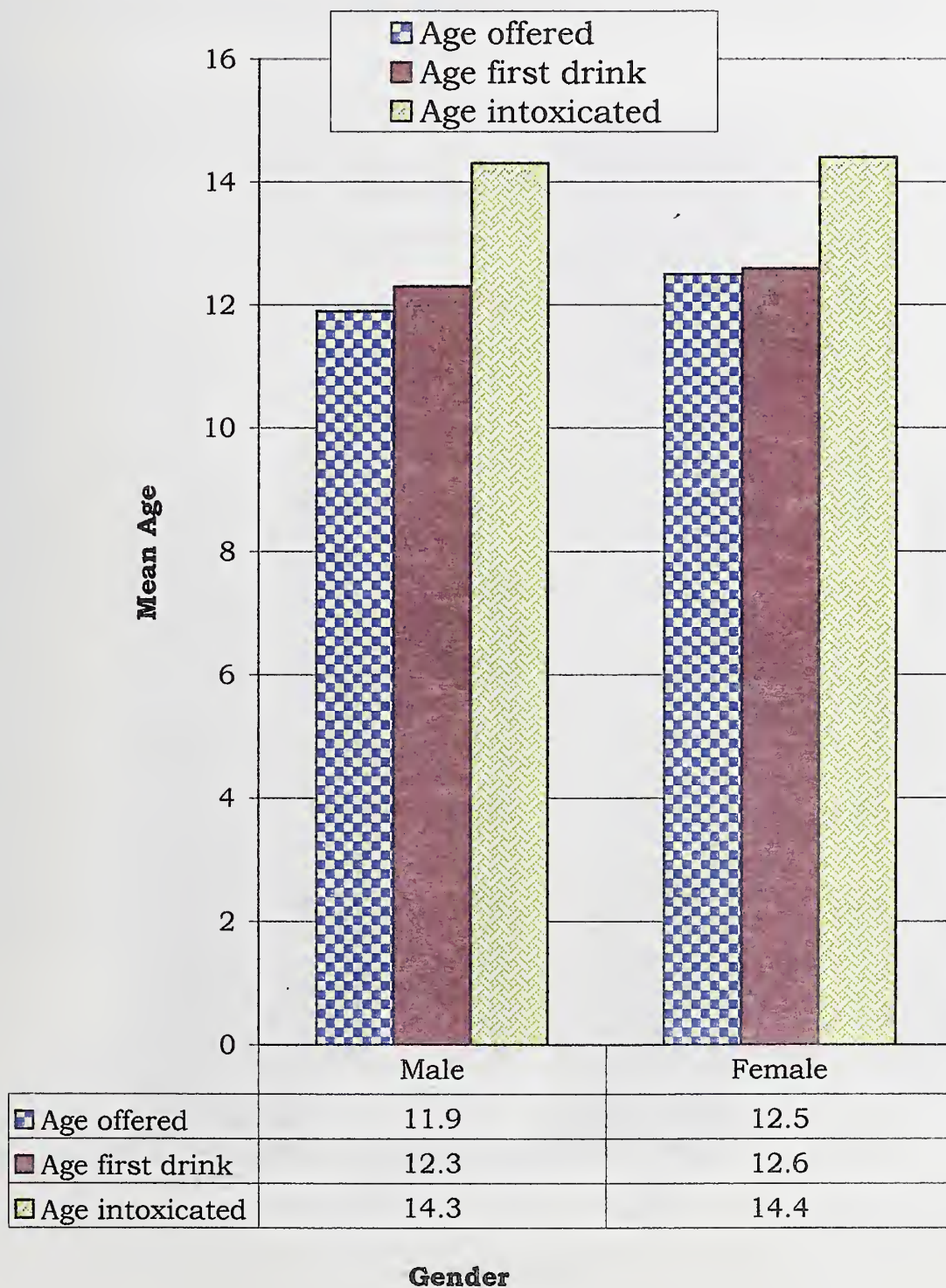


Chart 3.6 Average Number of Alcoholic Beverages Consumed by Gender

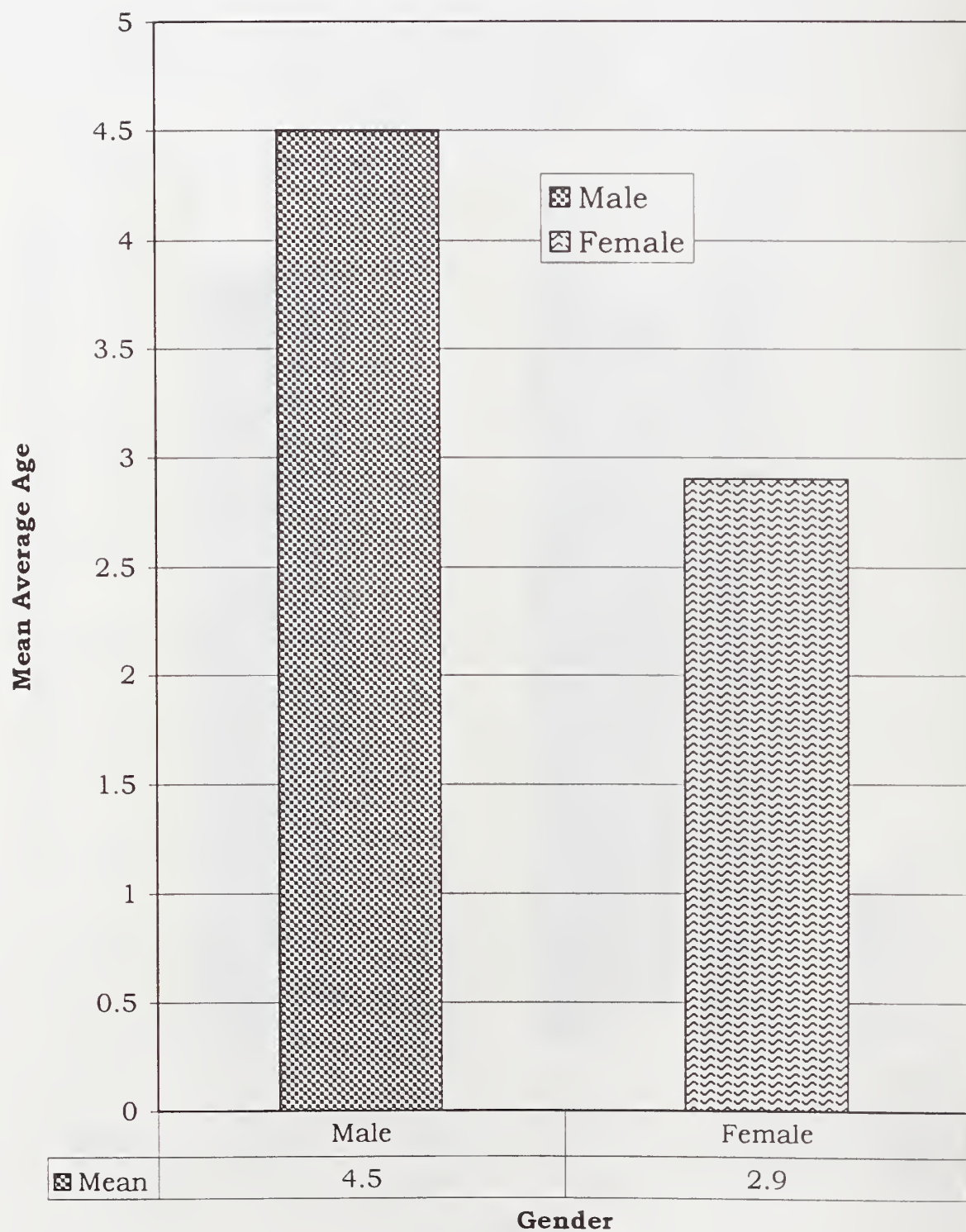
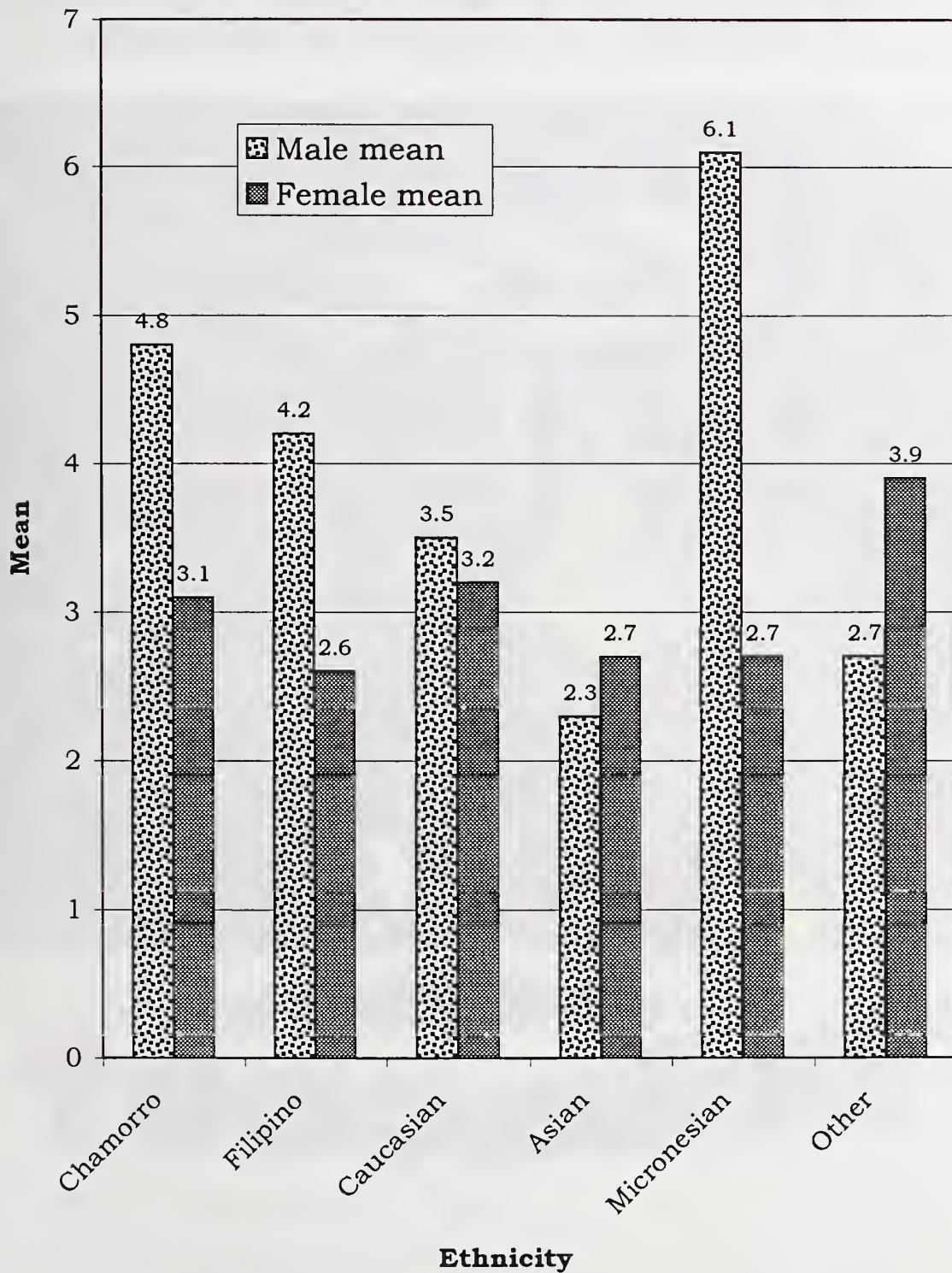


Chart 3.7 Mean Alcohol Consumption by Gender and Ethnicity





*In pursuit of happiness on Guam*



Is there glamour in  
**Tobacco?**



## Section 4

### TOBACCO

World-wide, tobacco kills approximately 3 million people annually (see Marshall 1997:411). Tobacco use is related to about 90 percent of lung cancer deaths, 30 percent of all other cancers, 20 to 25 percent of deaths due to coronary heart disease and stroke, and more than 80 percent of deaths related to chronic bronchitis and emphysema. Recent research in Guam suggests that higher educational levels are significantly associated with lower levels of smoking among both Chamorro and Philippine women, suggesting the importance of education in the reduction of this health risk behavior (see Pinhey, Workman, and Borja). As noted earlier in this report, tobacco is the second substance of choice among Guam's high school students. In this section, we explore their use of tobacco.

Table 4.1 presents a summary of responses to a question asking high school students if they would smoke a cigarette if one were offered to them. As may be seen, the modal response for the sample ( $n = 764$ ) is "definitely not" (53.8 percent). The data suggest, however, that males are more likely than females to accept and smoke cigarettes. Specifically, 20 percent of male students said they would accept a cigarette if offered, and 19 percent said maybe they'd accept one. That is one-and-one half times more males responding in the affirmative than females. Only 13.2 percent of female students said they would accept and smoke a cigarette, while

more than half (59.3 percent) of female students said they would definitely not accept a cigarette if offered.

Table 4.2 presents data showing when students who ever smoked were first offered tobacco. It appears that over half of the sample of smokers ( $n = 533$ ) were first offered tobacco before they were 12 years old. About 30 percent first smoked while in elementary school (10 years or younger) and an equal percent between the ages of 11 and 12 years (31.1 percent). There is no significant difference between males and females.

The age that students first used tobacco is presented in Table 4.3. As may be seen, male high school students appear to begin smoking at a slightly earlier age than female students do (11 - 12 years versus 13 - 14 years respectively). Nearly two-thirds of males (63 percent) first smoked at age 12 years or younger, whereas about half of female youths (43.5 percent) first smoked at ages 13 or higher.

When did students last use tobacco? As summarized in Table 4.4, one-third (36.5 percent) of males and one-fourth (26.8 percent) of females indicated that they had smoked within the last 24 hours. This is our best representative measure of current smokers; those most likely addicted and smoking on a regular daily-weekly basis. Among the total sample (far right column Table 4.4) about one fourth could be viewed as occasional smokers or experimenters. At least one-tenth of those who ever smoked did not have a cigarette for 1-3 weeks (within the last month), and it had more than a month for at least six (6) percent of respondents. Almost one-

third of males (31.4 percent) and the majority of female students (40.2 percent) indicated that they had not smoked in more than a year. Indeed, the idea that many students have only experimented is suggested by the finding that more than one third of the sample (35.7 percent) that had not smoked in more than a year.

Table 4.5 summarizes the ages at which the respondents were first offered tobacco and first used tobacco and confirms slight gender differences. As may be seen, the mean average age for males when first offered (11.5 years of age) and first used tobacco (11.5 years of age) is essentially the same as the measures for females (11.6 and 11.7 years of age respectively).

Finally, Table 4.6 contains data indicating that Guam's high school students have tried other forms of tobacco - - cigars, chewing tobacco, and pipes - - to a somewhat lesser degree than cigarettes. The focus of tobacco prevention programs (see Marshall 1997) should primarily focus on the use of cigarettes with a greater intensity than other tobacco products.

**In summary, it appears that:**

- (1) males and females are introduced to and begin using tobacco between the ages of 10-12 years old; as they exit elementary school they become "experienced" in middle school.**

- (2) male students are more likely to have used tobacco more recently than female students (within the last 24 hours versus the last year).
- (3) males are more likely to say they would accept a cigarette if offered one.
- (4) while students indicate they have tried other tobacco products, they do not appear to use them to the same degree that they consume cigarettes.

Table 4.1 Would Respondent Use Tobacco if Offered

Response	Male	Female	Total Sample
Definitely yes	19.9%	13.2%	16.5%
Maybe yes	18.9	13.7	16.2
Definitely not	48.0	59.3	53.8
Maybe not	7.8	8.7	8.2
Don't know	5.4	5.1	5.2
Total	371	393	764

Table 4.2 Age First Offered Tobacco Among Students Who Ever Smoked

Age	Male	Female	Total Sample
10 years and younger	29.9%	29.3%	29.6%
11 - 12 years	33.1	28.9	31.1
13 - 14 years	26.1	30.1	28.0
15 years and older	11.0	11.6	11.2
Total	284	249	533



Table 4.3: Age First Used Tobacco

Age	Male	Female	Total Sample
10 years and younger	29.5%	28.0%	28.8%
11 – 12	33.5%	28.5%	31.0%
13 – 14	24.8%	30.9%	27.8%
15 - 18	12.2%	12.6%	12.4%
Total	254	246	500

Table 4.4 Last Used Tobacco by Gender of Respondent

Last Smoked	Male	Female	Total Sample
Within 24 hours	36.5%	26.8%	31.7%
Within 7 days	10.6%	7.3%	9.0%
Within last month	8.2%	11.8%	10.0%
Within last year	5.5%	7.3%	6.4%
More than one year	31.4%	40.2%	35.7%
Total	255	246	501

Table 4.5 Mean Age of Respondents for First Offered Tobacco and Age First Smoked by Gender and Total Sample

Variable	Male	Female	Total Sample
Age offered	11.5	11.6	11.6
Age first smoked	11.5	11.7	11.6

Table 4.6 Use of Other Tobacco Products

	Frequency	Percent
Cigar	504	28.4%
Chewing tobacco	502	17.5%
Pipe	493	9.7%

Chart 4.1 Would Respondent Use Tobacco if Offered

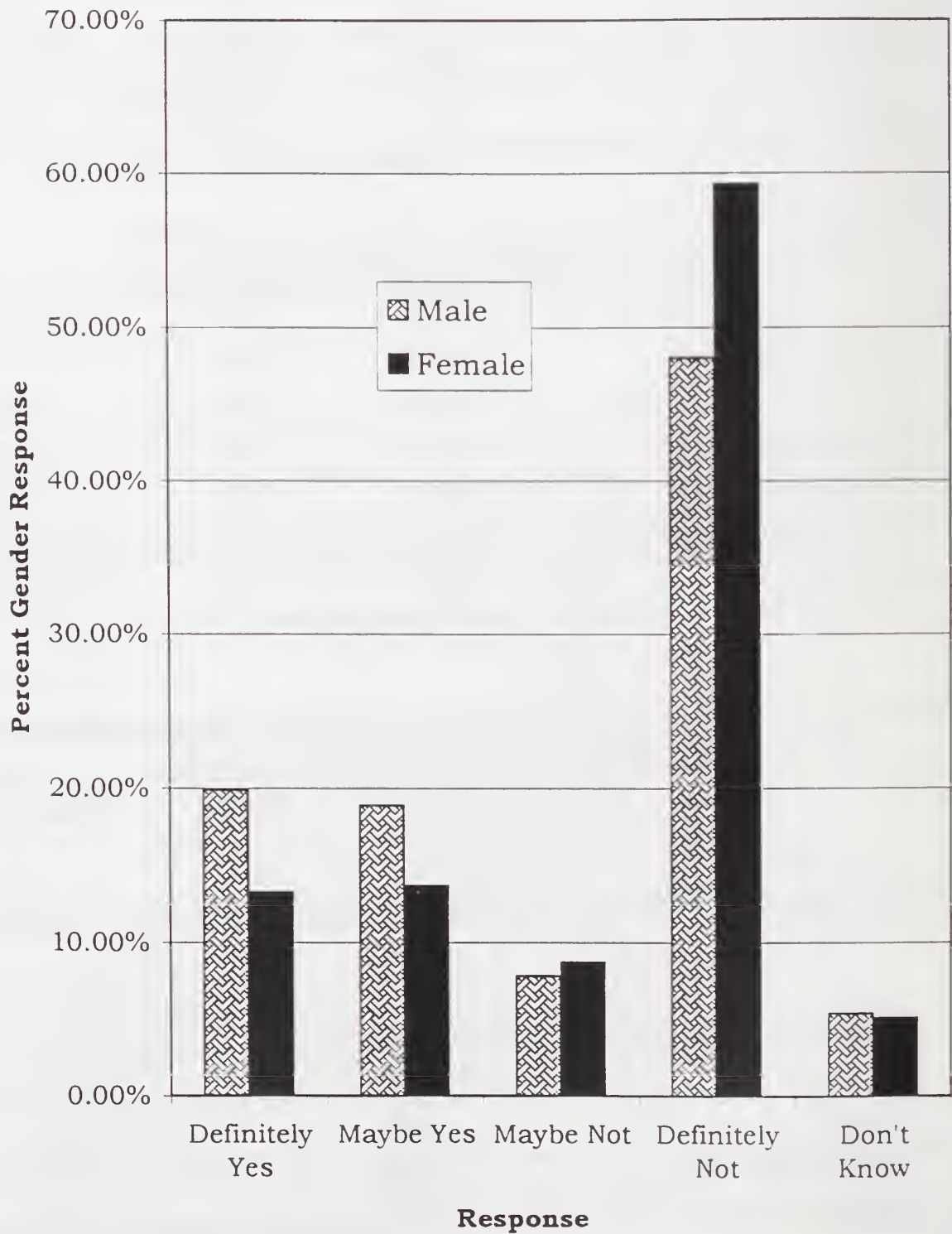
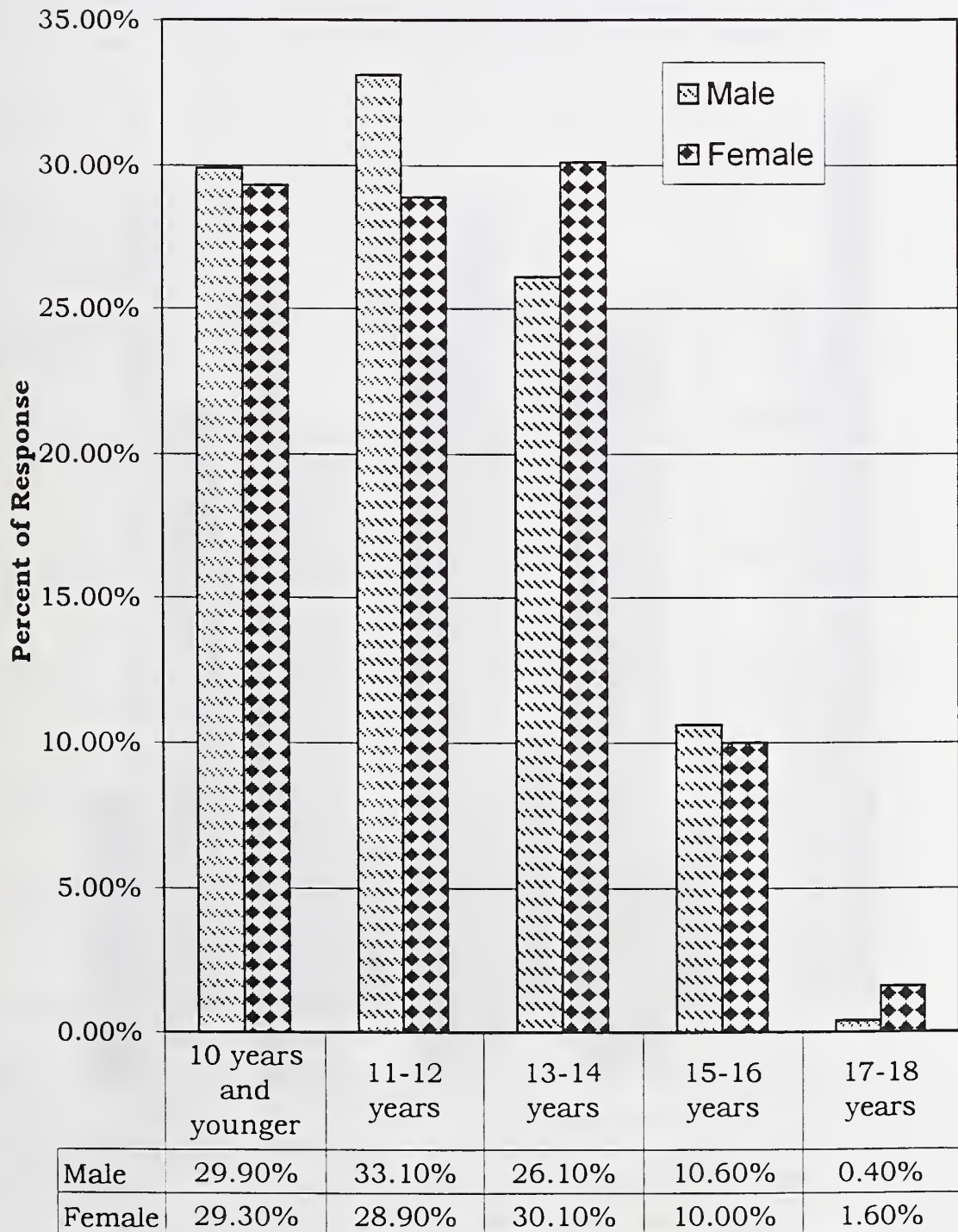


Chart 4.2 Age First Offered Tobacco



Gender

Chart 4.3 Age First Used Tobacco

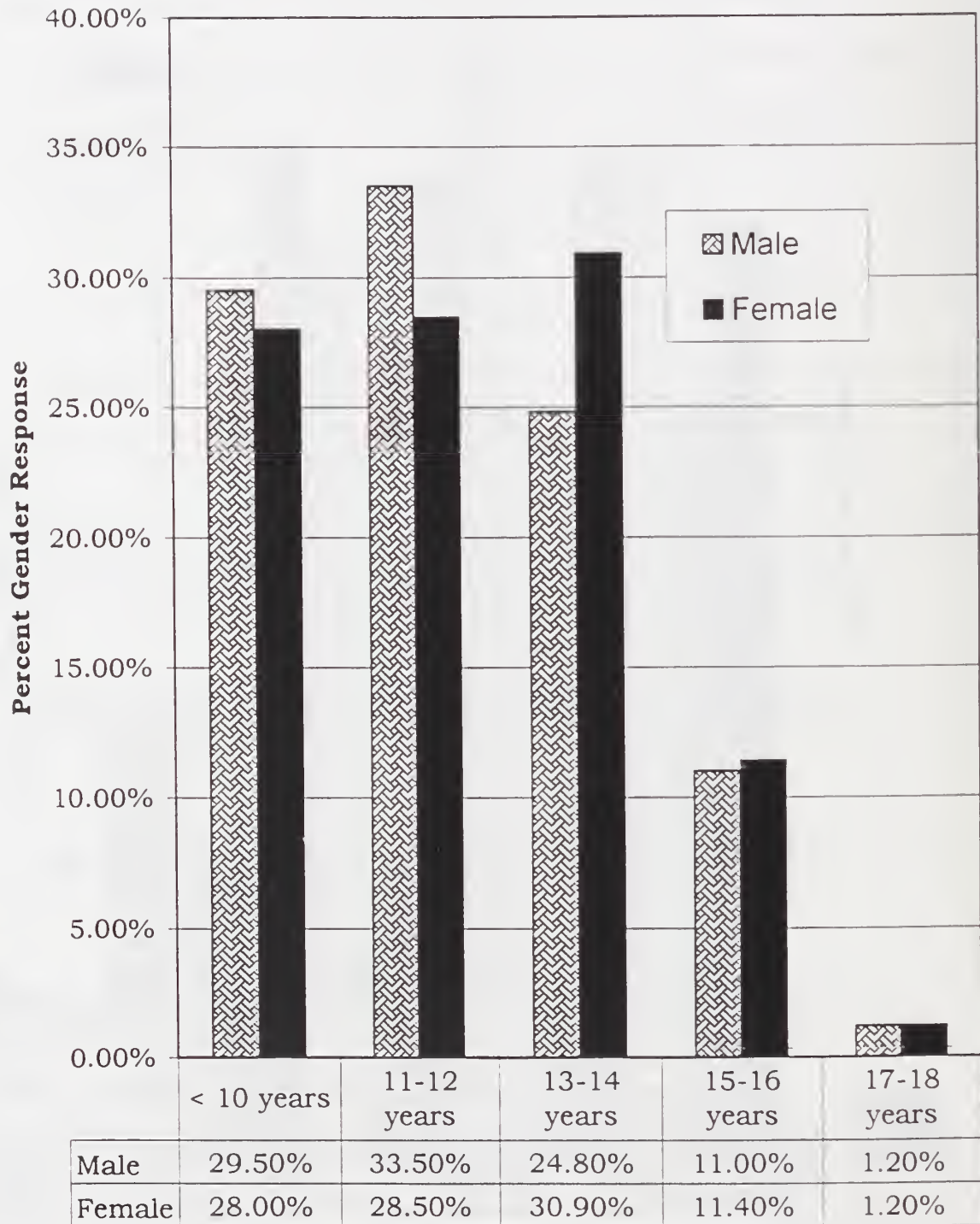
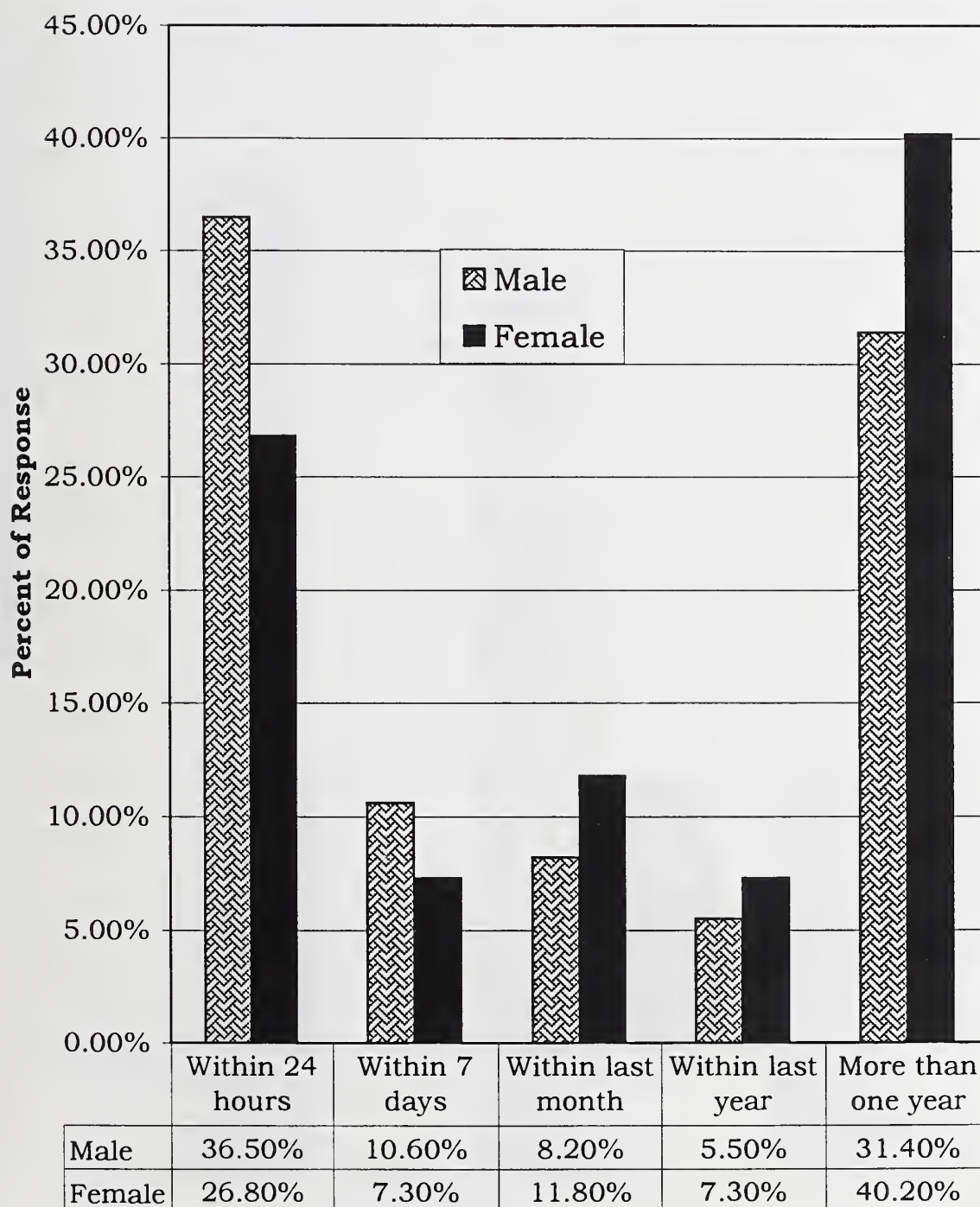


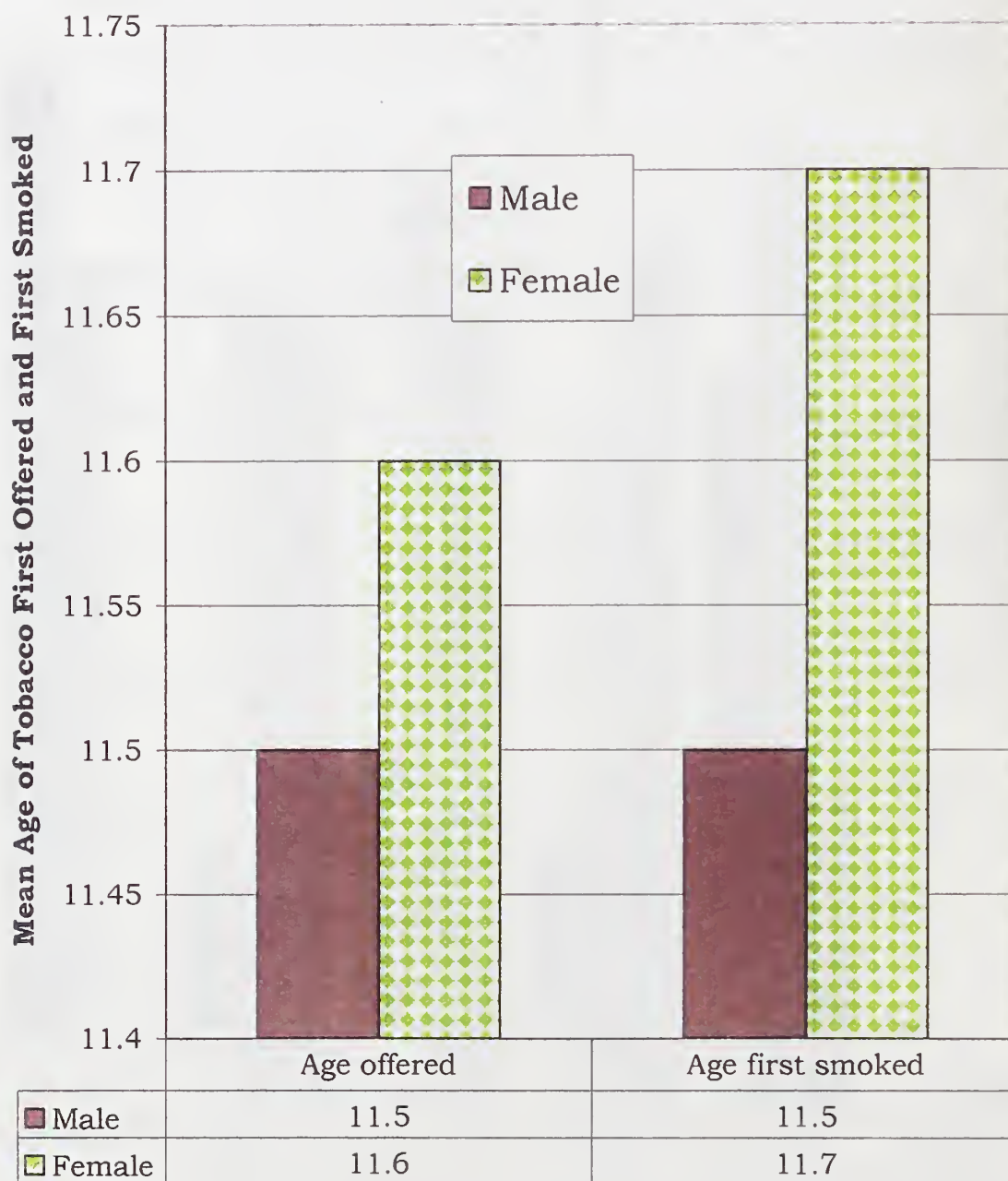


Chart 4.4 Last Used Tobacco



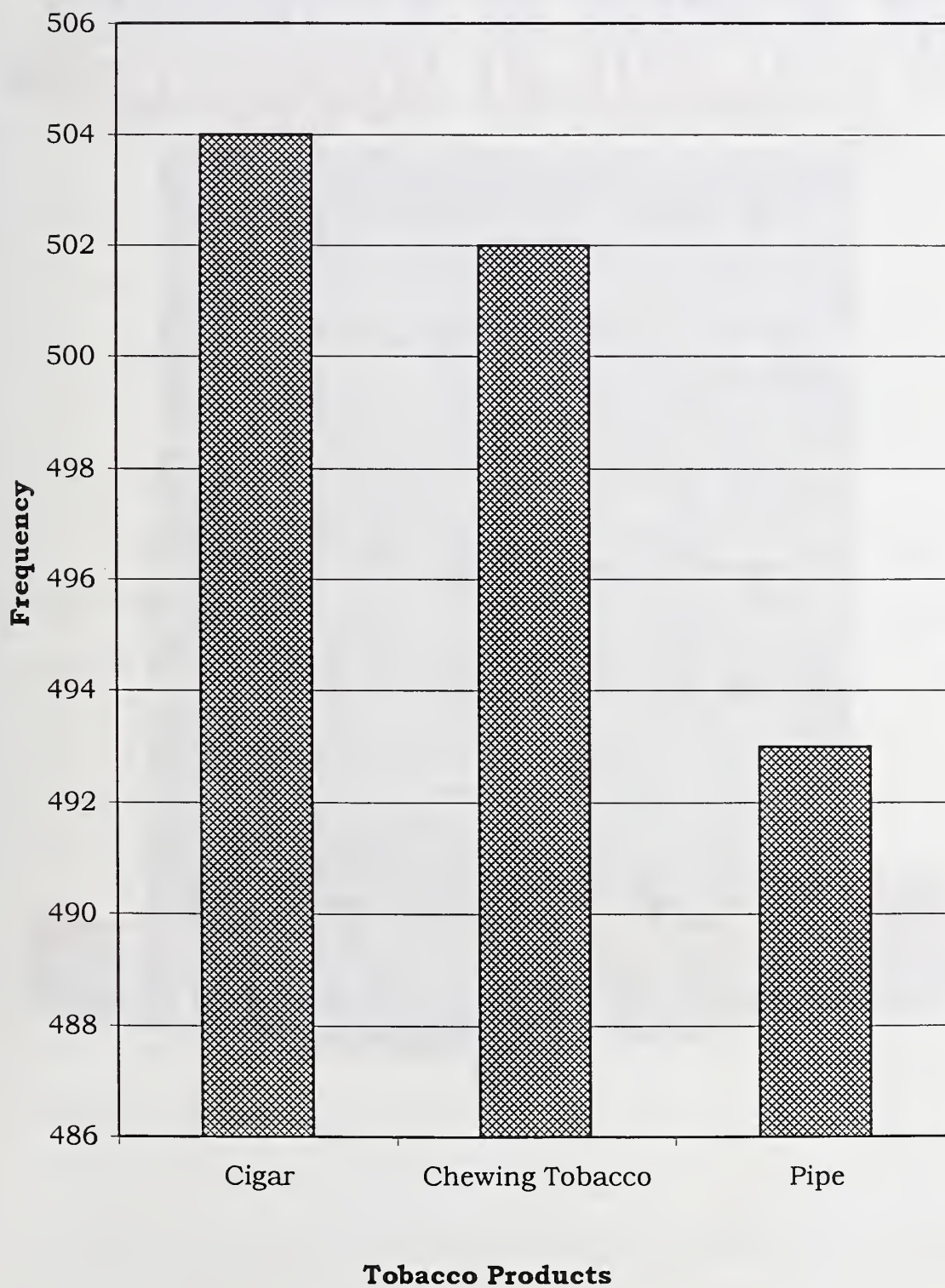
**Gender Response**

Chart 4.5 Mean Age of Respondents First Offered Tobacco and  
Mean Age of First Smoke By Gender and Total Sample



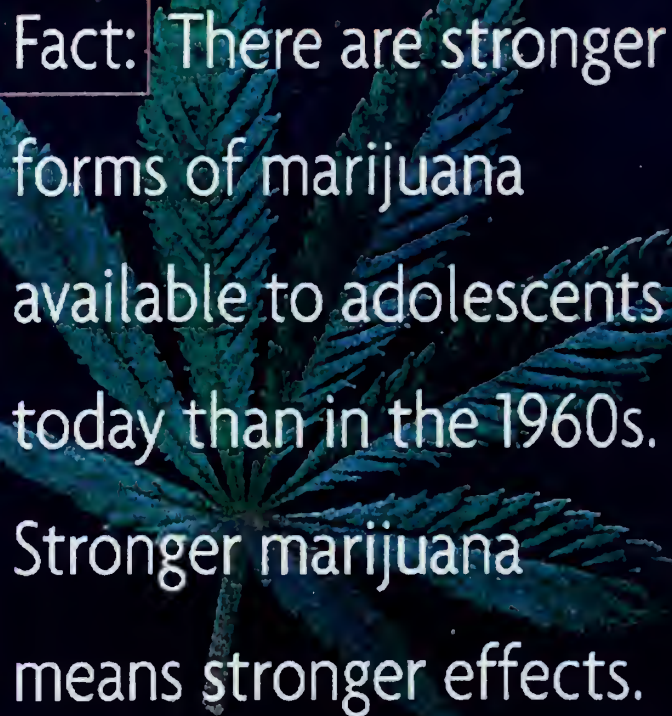
**Gender**

Chart 4.6 Use of Other Tobacco Products





# *In pursuit of happiness*



**Fact:** There are stronger forms of marijuana available to adolescents today than in the 1960s. Stronger marijuana means stronger effects.

# Marijuana



## Section 5

### MARIJUANA

Marijuana is the world's most widely used illegal substance, and about one in four Americans currently report having tried marijuana (Pinhey 1997b:112). Marijuana use is most frequent among those between 18 and 25 years of age, and is more popular among males than females. Recent research conducted in Guam indicates that among adults, the incidence of marijuana use is between 8 and 14 percent and that marijuana use increases greatly among younger persons (Pinhey 1997b). In this section of the report, we examine marijuana use among Guam's high school students.

As indicated earlier, following alcohol (73.8 percent) and tobacco (69.2 percent), marijuana was found to be the third ranked substance of choice among high school students (48.7 percent). Table 5.1 indicates that when asked if they would use marijuana when offered, males were twice as likely as females to respond "definitely yes" (22.0 percent versus 10.6 percent respectively). On the other side of the coin, female respondents were more likely than male respondents to indicate that they "definitely would not" accept marijuana if offered (45.2 percent versus 61.8 percent respectively). We note that while half (53.7 percent) of the sample indicated they would "definitely not" use marijuana if it was offered to them, one-third (32.8 percent) said they would definitely use (16.2 percent) or maybe use (16.6 percent) the substance when offered.

Table 5.2 contains data describing the age when students said they had first been offered marijuana. As may be seen, nearly half said they had been offered marijuana when they were between the ages of 13 and 14 years (43.1 percent). Similar to the data presented for alcohol and tobacco, males reported they had been offered marijuana earlier than females. Specifically, about one third (30.8 percent) of the males surveyed said they had been offered marijuana at age 12 years or younger compared to only one fifth 20.9 percent of females. In summary, males appear to be offered marijuana earlier than female students.

Table 5.3 contains data showing the age when students first tried marijuana and again nearly half (43.1 percent) of the sample said they first used the substance between the ages of 13 and 14 years. As with “age when offered,” there appears to be gender differences for ages when this substance was first used. More males (26.5 percent) than females (17.8 percent) reported they first tried the drug at age 12 years or younger, and more females (40.7 percent) than males (29.4 percent) reported they first tried marijuana at age 15 years or older.

Table 5.4 contains data showing the ages when the students surveyed first became high using marijuana. As may be seen, the majority of respondents said they first became high using marijuana between the ages of 13 and 14 years (42.3 percent of the total sample). As suggested from the findings for alcohol and tobacco, male students appear to use and become high on marijuana earlier than female students do.

Specifically, 25.3 percent of males said they first became high on marijuana at age 12 years or younger while 43.2 percent of females said they first became high at age 12 years or younger while 43.2 percent of females said they first became high at age 15 years or older. **In summary, it appears that females do not begin to use and become "intoxicated" using marijuana until they are slightly older than their male counterparts.**

As may be seen in Table 5.5, the modal category for males last using marijuana is within 24 hours (22.7 percent) versus within 7 days for female respondents (22.3 percent). It appears that male high school students in Guam use marijuana more regularly and perhaps more often than female students. This finding is in keeping with the results of earlier studies (see Pinhey 1997b).

Finally, we summarize the average ages at which students say they were first offered marijuana, tried marijuana, and became high on marijuana (see Table 5.6). As may be seen, male students appear to be somewhat younger when they tried the substance and became high using the substance than female students did. The average age at which students were offered the substance differs only slightly (13.3 years for males and 13.8 years for females). In summary, Guam's high school students are offered marijuana at about the same age but male students tend to try the substance and become high using the substance at a slightly earlier age than do female students. In keeping with earlier

findings, male students appear to be more likely than female students to accept the substance at younger ages, to have first tried marijuana at younger ages, and are younger when they first become high using the substance.

Table 5.1 Would Respondent Use Marijuana if Offered

Response	Male	Female	Total Sample
Definitely yes	22.0%	10.6%	16.2%
Maybe yes	19.4	13.9	16.6
Maybe not	9.1	8.4	8.7
Definitely not	45.2	61.8	53.7
Don't know	4.3	5.3	4.8
Total	372	395	767

Table 5.2 Age First Offered Marijuana

Age	Male	Female	Total Sample
12 years younger	30.8%	20.9%	26.6%
13 - 14 years	41.1%	42.4%	41.7%
15 years older	28.1%	35.7%	31.8%
Total	253	191	444

Table 5.3 Age Tried Marijuana

Age	Male	Female	Total Sample
12 years younger	26.5%	17.8%	23.0%
13 - 14 years	44.1%	41.5%	43.1%
15 years older	29.5%	40.7%	33.9%
Total	204	135	339



Table 5.4 Age First High on Marijuana

Age	Male	Female	Total Sample
12 years and younger	25.3%	16.2%	21.8%
13 - 14 years	43.4%	40.5%	42.3%
15 years older	31.3%	43.2%	35.8%
Total	182	111	293

Table 5.5 Last Used Marijuana By Gender and Total Sample

Variable	Male	Female	Total Sample
Within 24 hours	22.7%	7.9%	16.8%
Within 7 days	17.4	22.3	19.4
Within 1 month	19.3	20.9	19.9
Within a year	19.8	26.6	22.5
More than 1 year	20.8	22.3	21.4
Total	207	139	346

Table 5.6 Mean Age of Respondents for First Offered Marijuana, First Tried Marijuana, and First High on Marijuana by Gender and Total Sample

Variable	Male	Female	Total Sample
Age offered	13.3	13.8	13.5
Age tried	13.5	14.0	13.7
Age High	13.5	14.1	13.7

Chart 5.1 Would Respondent Use Marijuana if Offered

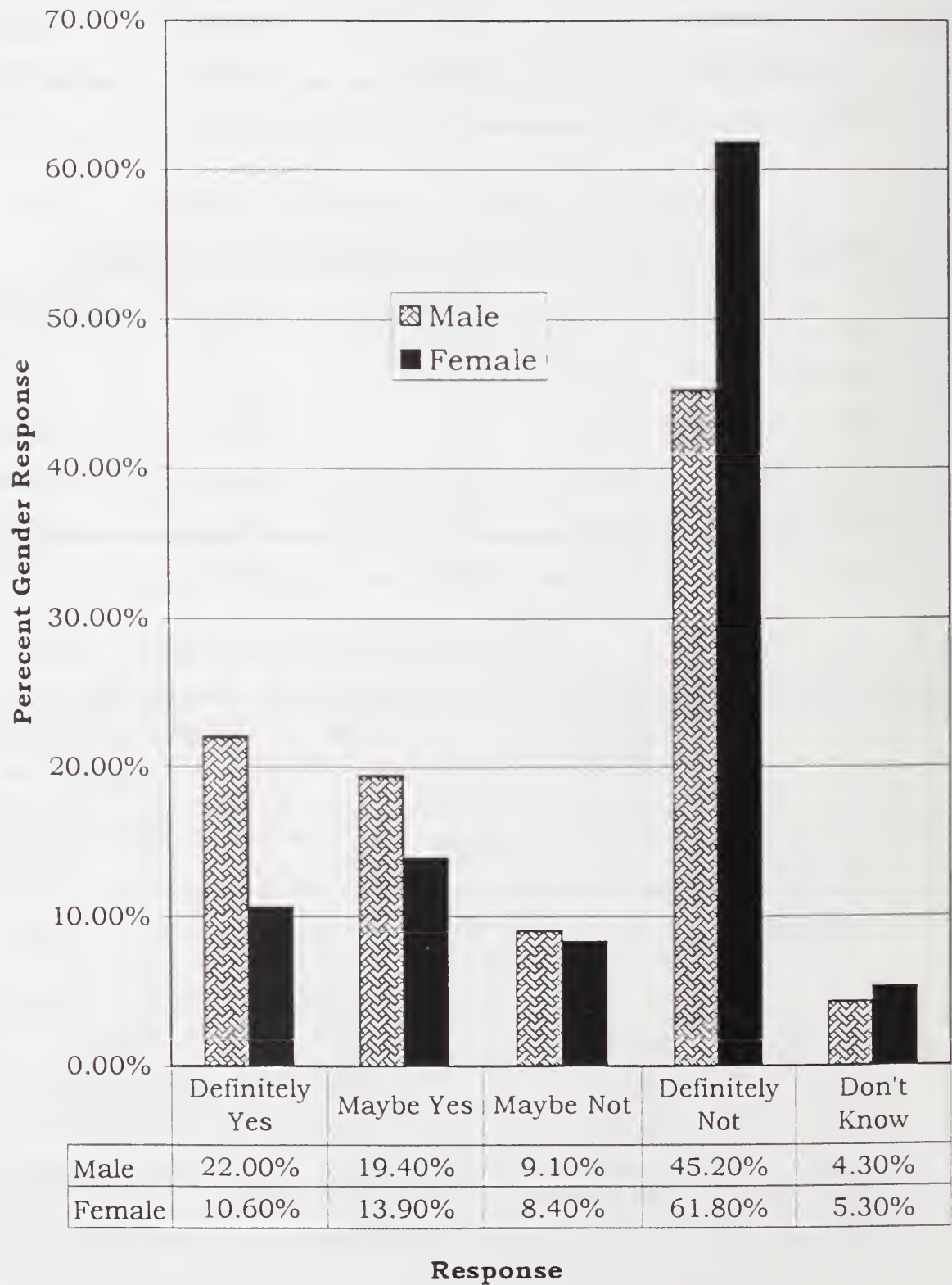


Chart 5.2 Age First Offered Marijuana

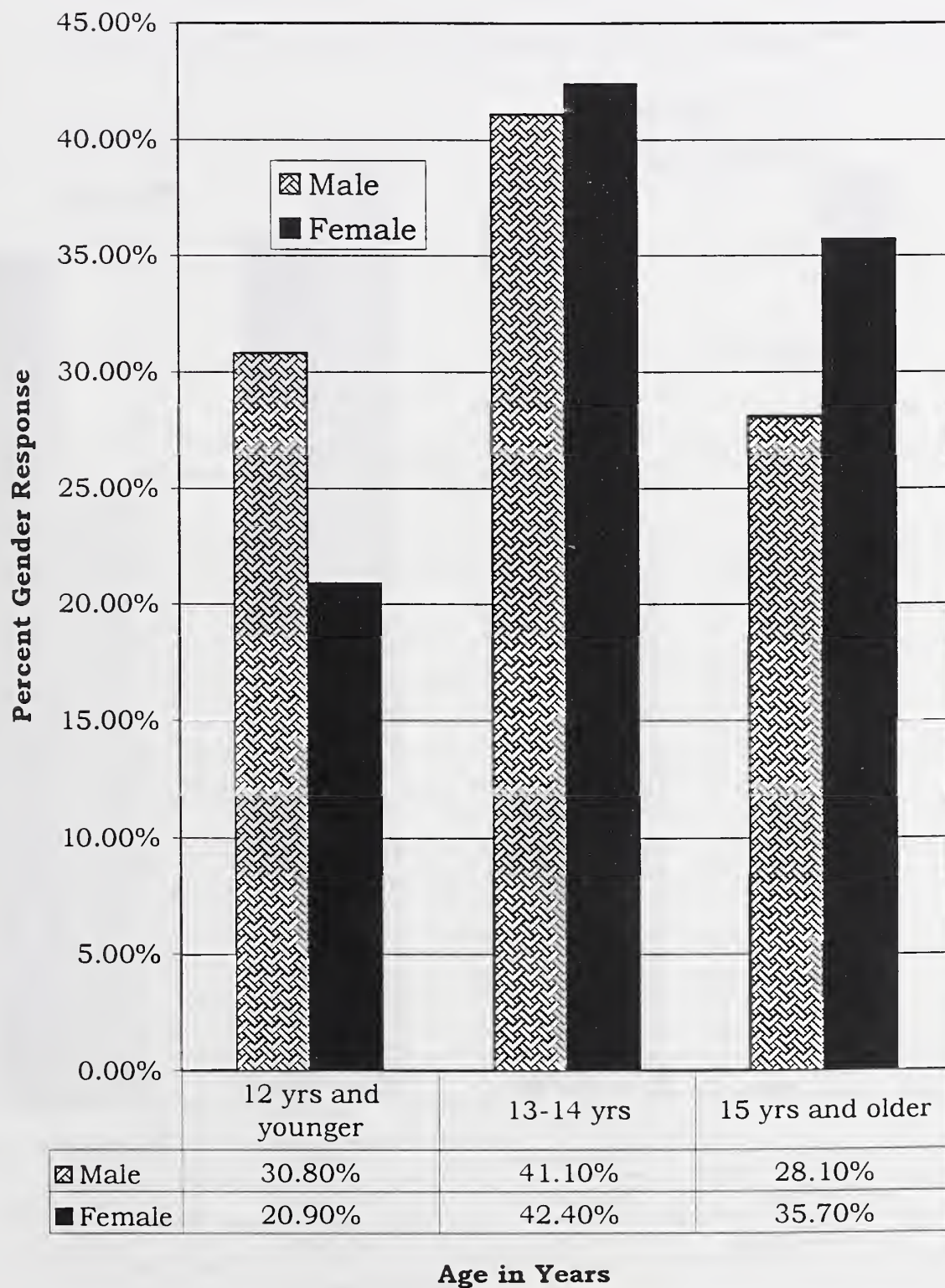


Chart 5.3 Age First Tried Marijuana

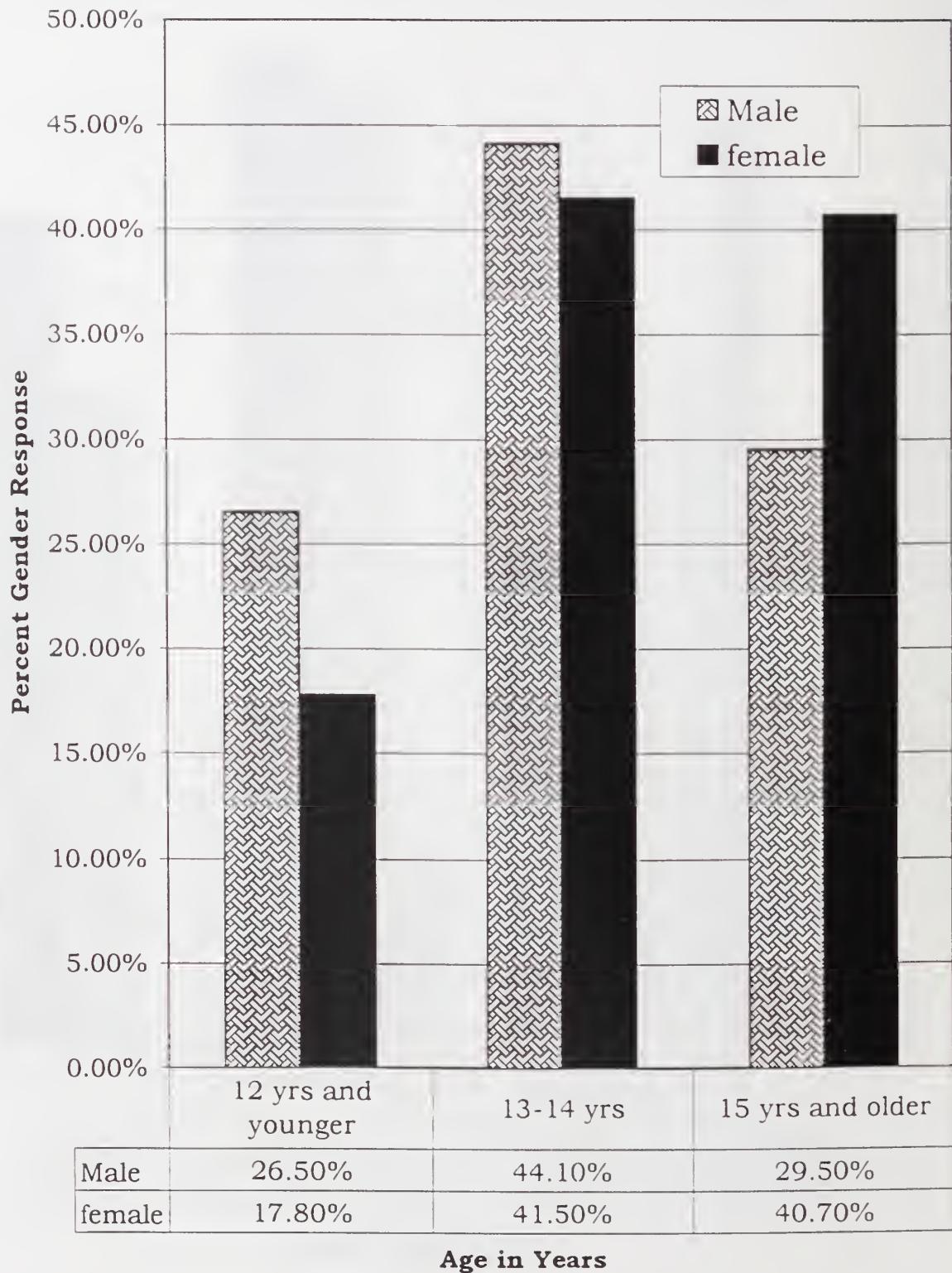




Chart 5.4 Age First High on Marijuana

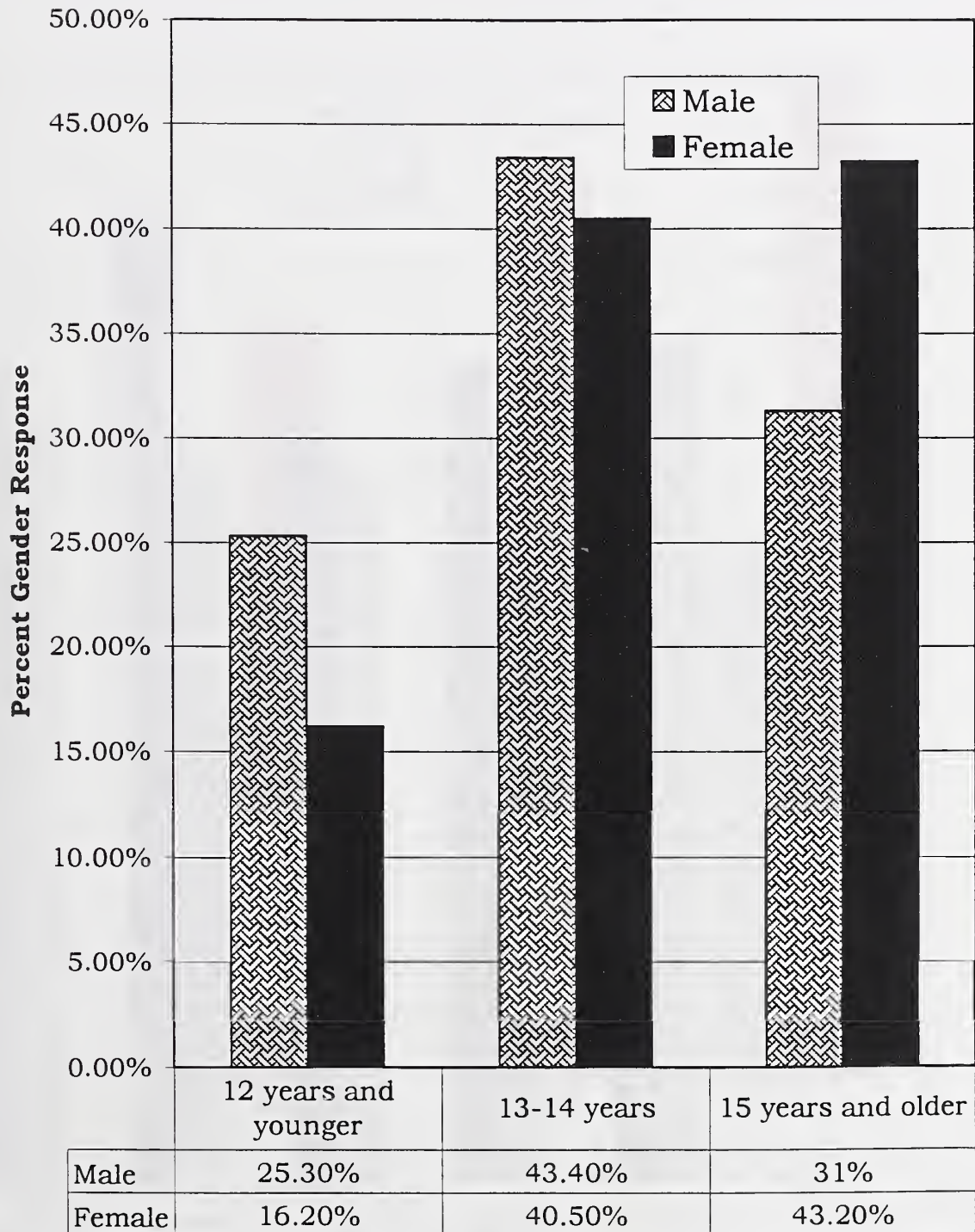


Chart 5.5 Last Used Marijuana by Gender and Total Sample

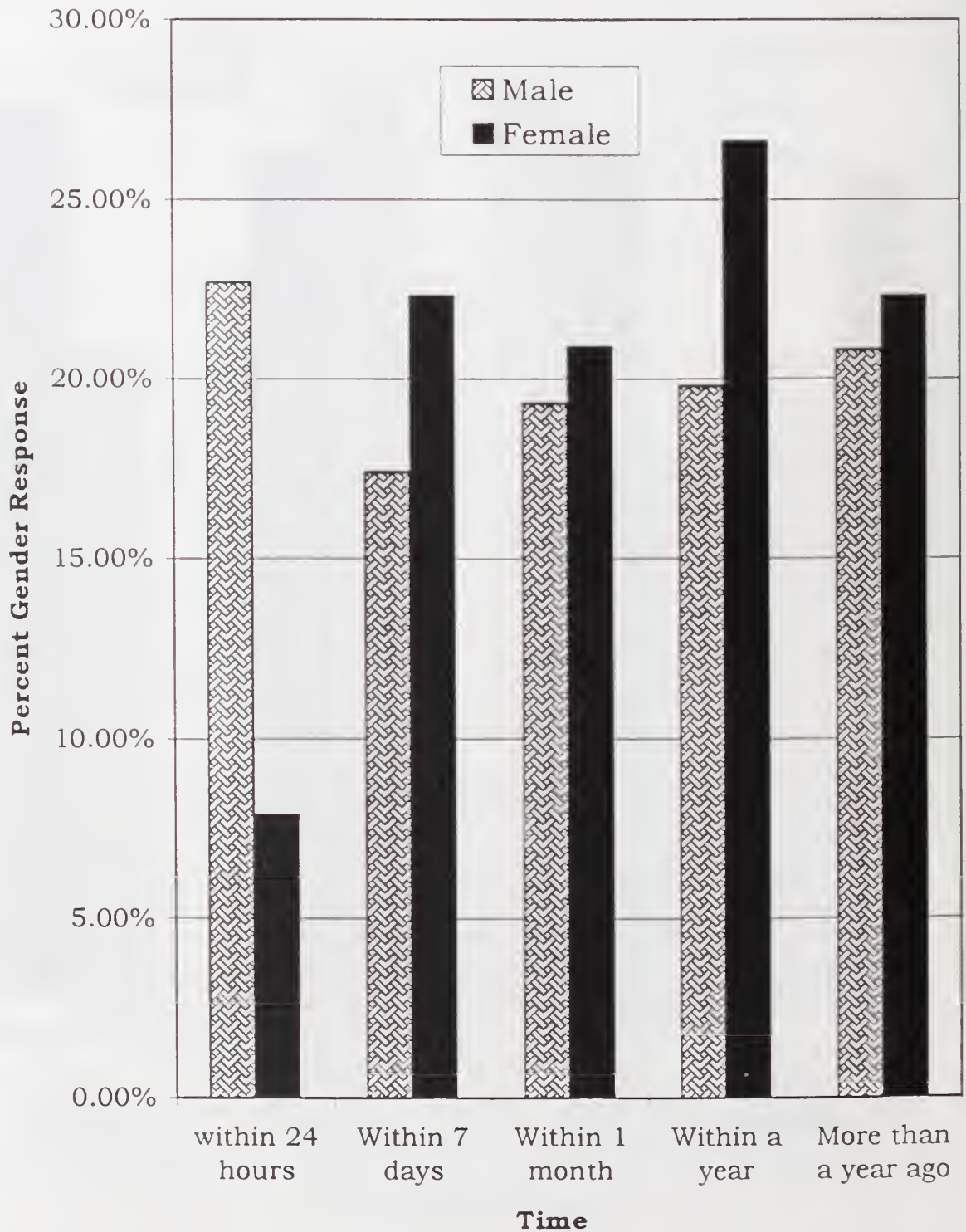
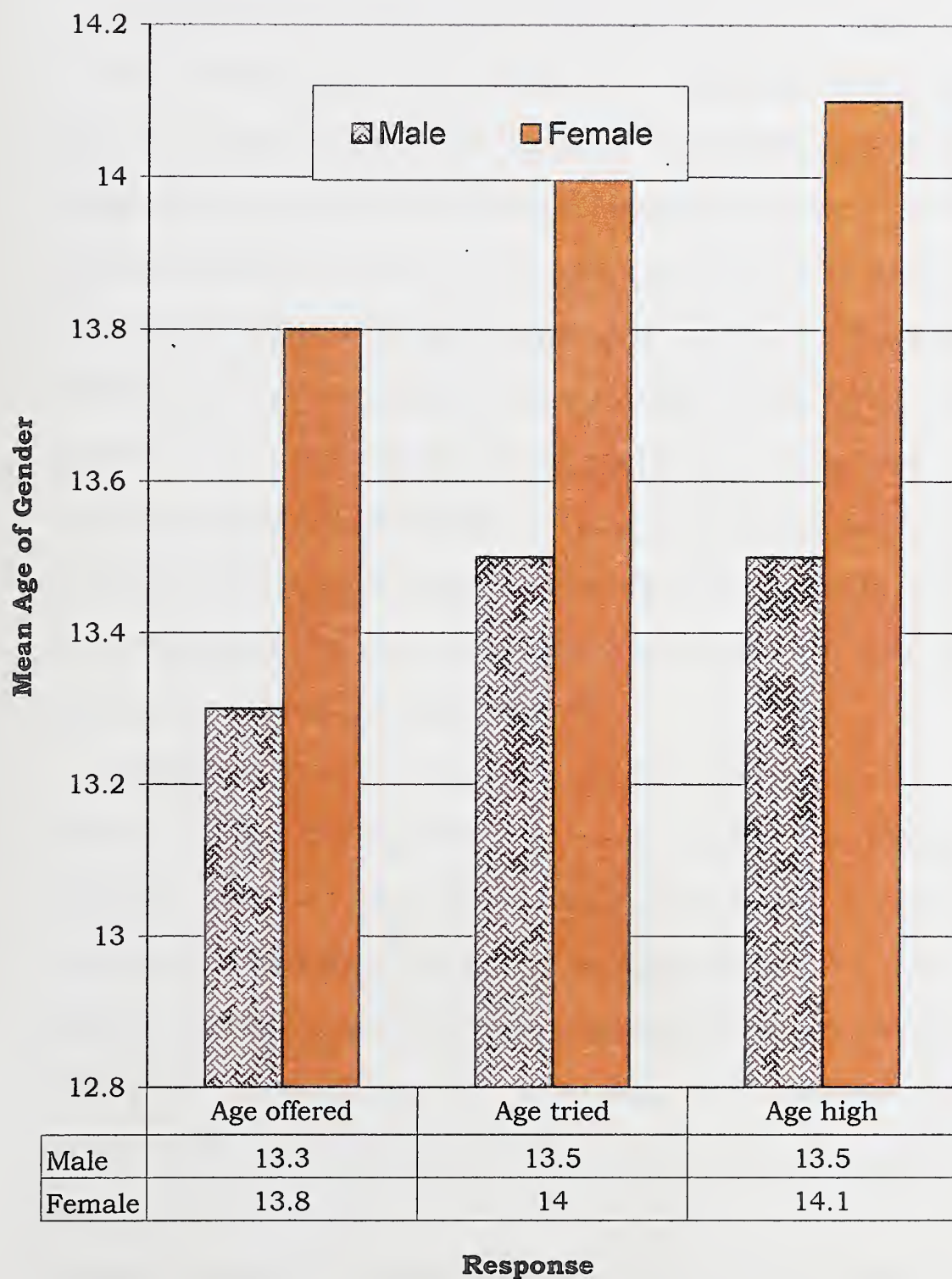


Chart 5.6 Mean Age of Respondents When First Offered,  
First Tried, and First High on Marijuana







## Section 6

### **METHAMPHETAMINE: *ICE***

Two-thirds (68 percent) of all arrests for drug possession on Guam in 1996 involved crystal methamphetamine – commonly called *ICE* (see Table 1a.1, page 9). It's a form of synthetic amphetamines, originally developed in the 1930's as prescriptions for various disorders. It became popular through the 1950's into the 1980's as one kind of stimulant to keep truck drivers alert, college students awake and sport athletes in peak form (*War On Ice Seminar Resource Booklet*, August 1998: pg.18). But the explosion in its popularity around the world has it being produced in clandestine chemical factories where it comes out looking like rock salt. Most often it is heated in glass pipes or tubes to be smoked, but it is water-soluble and it is rumored that more users on Guam may now be injecting it for a faster and longer "high."

Examining Table 6.1 the data revealed about one-out-of-seven students (13.1 percent) reported they have tried Ice in their lifetime. As displayed in Chart 6.1, we found that male students were more likely to have experimented with this drug (16.7 percent) than female students (9.6 percent). Students were asked whether they would use it if offered when with a group of people they knew. Only about 80 % responded with the extreme negative of "*Definitely No.*" This leaves the numbers who are unsure or willing close to the numbers of those who have used it. Presented in Table 6.2, we found about 8 percent of males were unsure

("don't know" or "maybe not") and 10.7 percent said, "Yes" or "Maybe yes." Among females, 7.5 percent were unsure ("don't know" or "maybe not") and about 10 percent said "Yes" or "Maybe yes."

Table 6.1 Has Respondent Ever Used Ice by Gender and Total Sample

Response	Male	Female	Total Sample
Yes	16.7%	9.6%	13.1%
No	83.3%	90.4%	86.9%
Total	330	334	664

Table 6.2 Would Respondent Use Ice if Offered by Gender And Total Sample

Variable	Male	Female	Total Sample
Definitely yes	3.6%	3.2%	3.4%
Maybe yes	7.1	5.6	6.3
Maybe not	7.4	6.1	6.7
Definitely no	81.3	84.1	82.7
Don't know	.5	1.1	.8
Total	364	378	742

Table 6.3 Mean Age of Respondents for First Offered Ice and First Tried Ice by Gender and Total Sample

Variable	Male	Female	Total Sample
Age offered	14.9	14.3	14.7
Age tried	15.2	14.4	14.9

One noticeable pattern in substance use appearing in these Guam data is that ages when youth are first offered or when they first consume a drug, correspond to the nature of its legality and accessibility among adults. Youth gained access to alcohol at slightly younger ages than tobacco; tobacco is a drug with much greater public health controversy (at present) which is used less among adults than alcohol. Yet youth gain access to both of these "legal" drugs before marijuana; Ice, in turn is a drug with more intense health consequences, expenses and impacts than marijuana. Presented in Table 6.3, the mean age when youth have gained access and first experimented with Ice is (at the time of this study) about 15 years. This locates students as being in their Freshman and Sophomore years – the life phase when they have moved out of middle school and just entered high school. These are their preparatory teenage years – the last years of being adolescents before becoming young adults.

We propose that among Guam youth this pattern of gaining access, then experimenting, and finally using various drug substances follows the opening of opportunities from the "adult" world. They are following a path from being children to becoming adults. Just as we have adults who moderately use substances and those who abuse these drug substances, so we find use and abuse among youth. Just as there are adults who avoid illegal drugs and those who "use" them, so we find youth experimenting with these same substances.

This proposed process may explain the finding displayed in Chart 6.3 that Guam's girls reported having offers and initiating use of Ice at slightly younger ages (14.3 / 14.4 years) than Guam's boys (14.9 / 15.2 years). It remains that greater numbers of males take the risks and engage in drug use behavior. Table 6.4 presents data on when Ice was last used, and twice as many males (N= 56) responded as females (N= 30). Yet the data show that greater percentages of girls report having used it more recently. Among the females, 13.3 percent said they used Ice "*within 24 hours prior*" to taking the survey, compared to 10.7 percent of boys. Adding percentage totals through having used Ice "*within the past six months*" almost 70 percent of girls responded compared to only 62.5 percent of the boys. As shown, more boys (28.6 percent) than girls (16.7 percent) reported that it has been "*1 year or longer*" since they last used Ice.

We asked several questions about needle use. It was brought to our attention that this might document what is only rumor- that Ice is being injected. This concern is not a trivial detail. In previous research (Workman and Pinhey, 1997) we found among a sample of intravenous drug users that 81 percent shared needles – which is a causal source spreading HIV/AIDS. As displayed in Table 6.5, among students who observed events, two-thirds (64.2 percent) reported seeing it injected. Although heroin and cocaine injection may be less frequent because these drugs are expensive, the lower cost and higher frequency of injecting Ice



can make it a fatal vector for the spread of HIV and AIDS among our population, and youth.

Table 6.4 Last Used Ice by Gender and Total Sample

Variable	Male	Female	Total Sample
Within 24 hours	10.7%	13.3%	11.6%
Within last 7 days	14.3%	3.3%	10.5%
Within last month	12.5%	23.3%	16.3%
Within last 6 months	25.0%	30.0%	26.7%
Within last year	8.9%	13.3%	10.5%
More than 1 year ago	28.6%	16.7%	24.4%
Total	56	30	86

Table 6.5 Have Respondents Ever Seen a Person Inject Ice By Gender and Total Sample

Response	Male	Female	Total Sample
Yes	66.7%	60.7%	64.2%
No	33.3%	39.3%	35.8%
Total	90	61	151

Table 6.6 Student Perceptions of Teacher Attitudes by Gender of Students and Use of Methamphetamine

	Male	Female	Total
Non-User			
Students are numbers			
Yes	27.8%	16.5%	22.0%
No	72.2%	83.5%	78.0%
Total	225	278	416
Used Ice			
Students are numbers			
Yes	34.0%	30.0%	32.5%
No	66.0%	70.0%	67.5%
Total	47	30	77

### **A Note on Student Perceptions of Teacher Attitudes**

In this added note we examined students' perceptions of teachers' attitudes by gender and whether students say they have ever used ice. Students were asked if teachers saw them as simply "numbers." The literature suggests that negative school environments contribute to students' participation in various health risk behaviors such as substance abuse and fighting. If teachers are perceived as ignoring students and treating them indifferently, these views may contribute to students' acting-out in various ways (e.g., Aggression, drug use, truancy). We suspect that students who have used ice will be more likely to have negative perceptions of teachers' and will be more likely to evaluate teachers negatively by saying they see students as simply numbers rather than individuals.

As shown in Table 6.6, students who had not used Ice were less likely than those saying they had used ice to evaluate their teachers negatively, and the gender differences are particularly remarkable when female non-users are compared with females that said they had used the substance. Indeed, whereas only 16.5 percent of females who said they had not used Ice saw their teachers negatively, fully 30 percent of female students who used Ice believed teachers saw them as numbers rather than individuals. The difference for male students is approximately 6 percent (27.8 percent versus 34 percent respectively).

Chart 6.1 Has Respondent Ever Used Ice By Gender and Total Sample

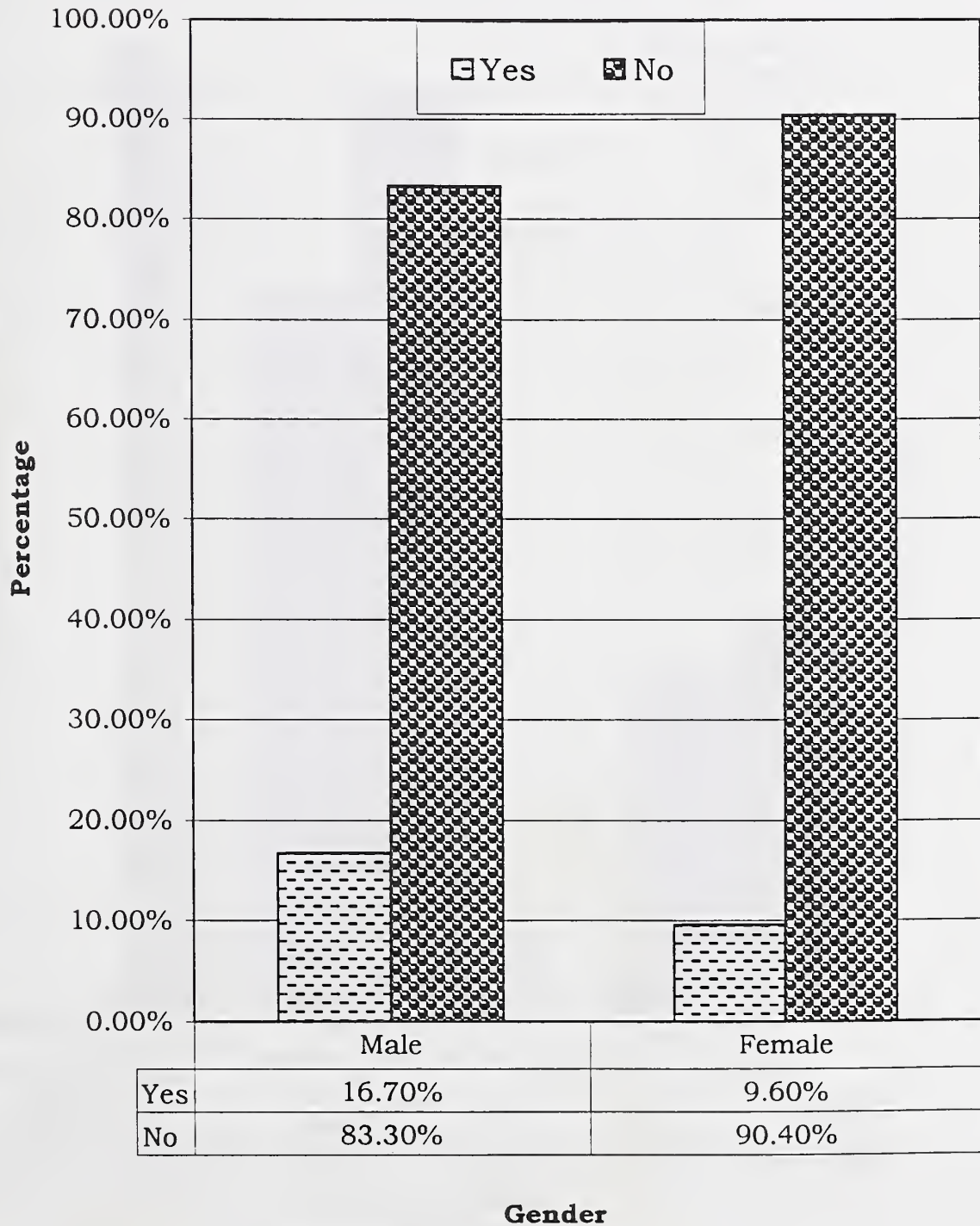


Chart 6.2 Would Respondent Use Ice if Offered

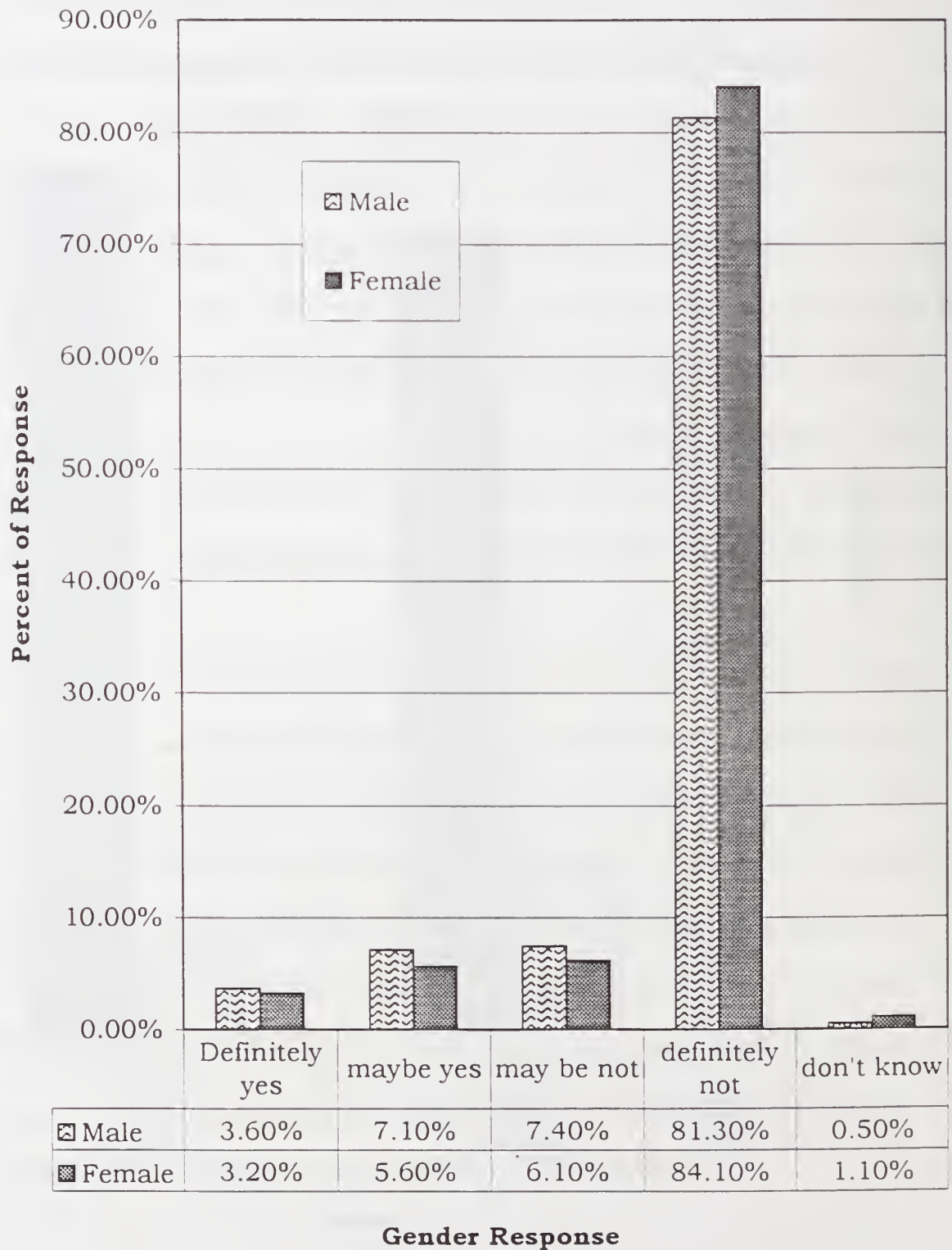




Chart 6.3 Mean Age of Respondents for First Offered Ice and First Tried Ice by Gender and Total Sample

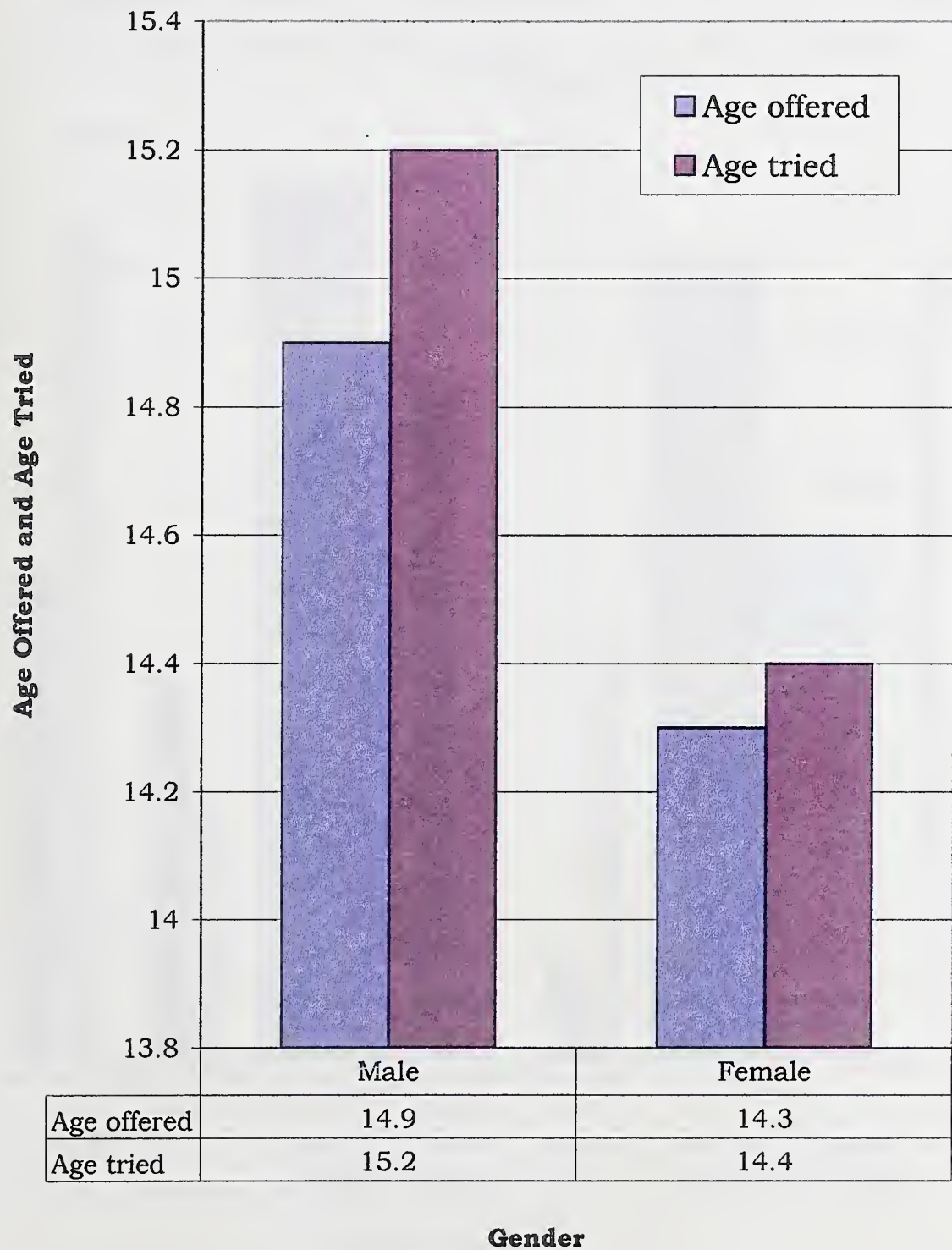
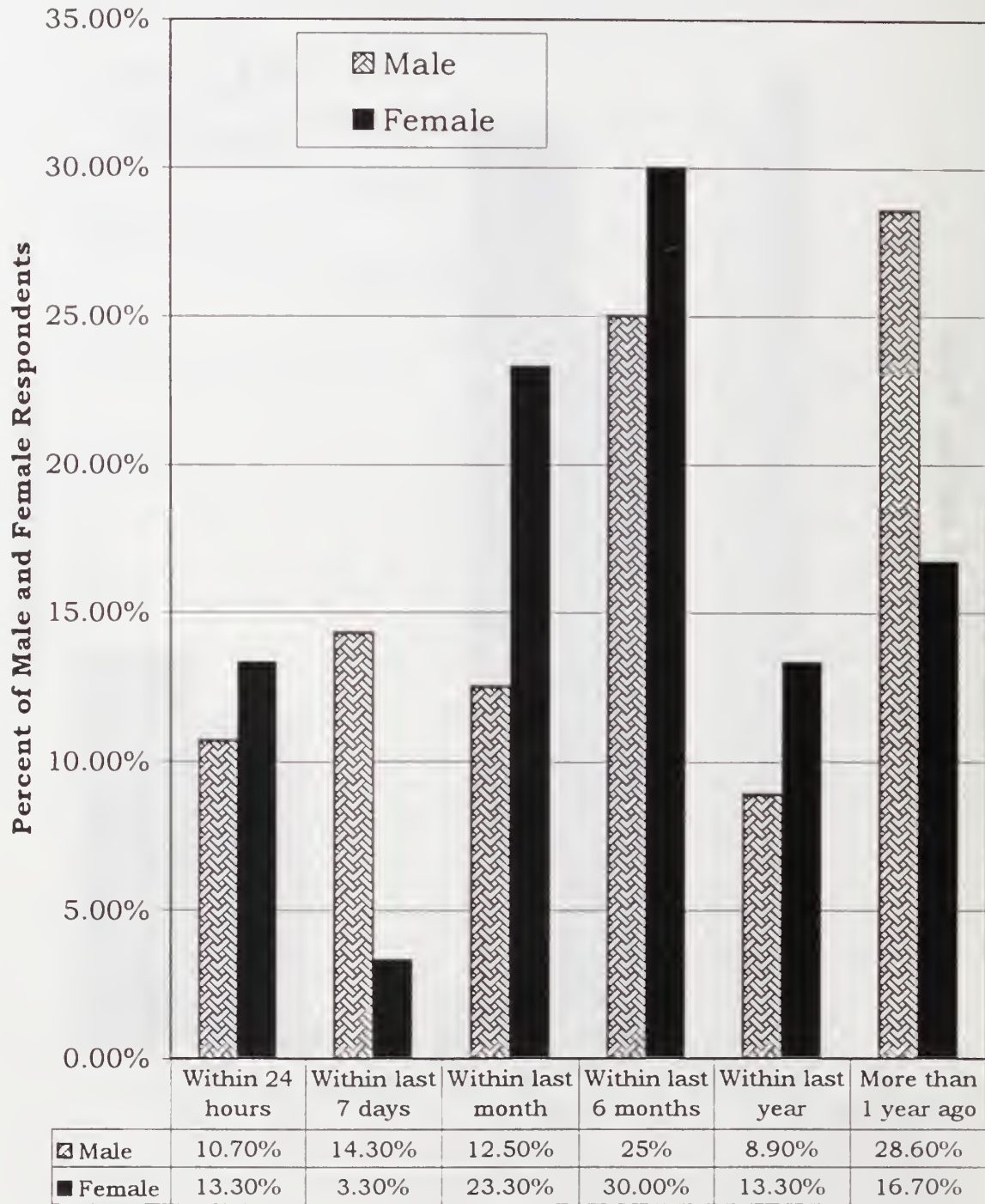
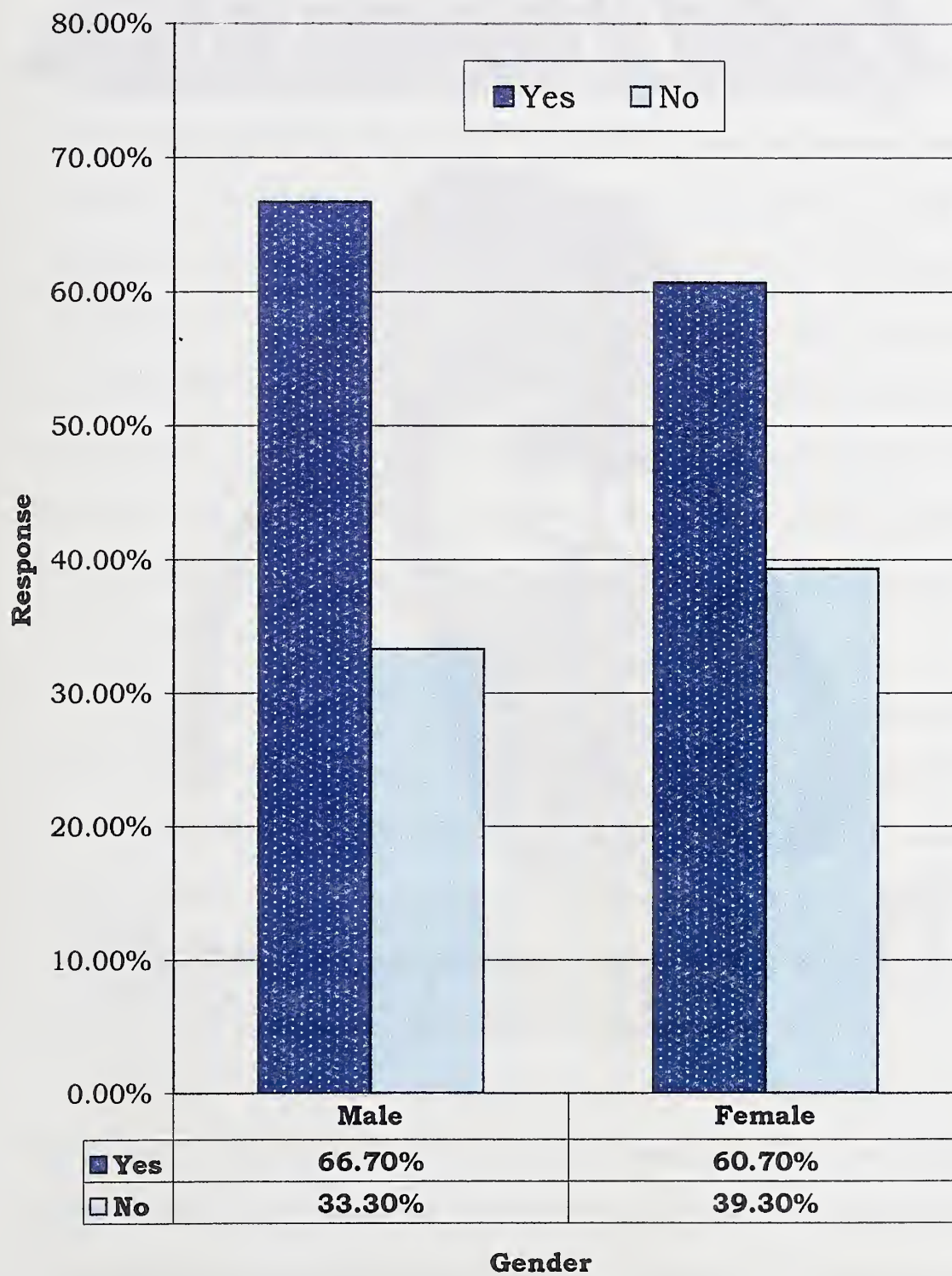


Chart 6.4 Last Used Ice by Gender and Total Sample



**Last Used Ice**

Chart 6.5 Have Respondents Ever Seen a Person Inject Ice





# *In pursuit of happiness on Guam*



The fear of violence



## **Section 7**

### **FIGHTING: AN EXPLORATORY ANALYSIS**

This section of the report explores the incidence of fighting among Guam's high school students. Previous research shows that males are at greater risk for fighting and aggressive behavior than are females and that exposure to violence as either a witness or victim tends to result in aggressive behavior and fighting (Fitzpatrick1997). Fighting and aggressive behavior are also known to be associated with belonging to non-intact families and with an absence of rules, support, and positive expectations that often result from strong relationships with family members and teachers (see Fitzpatrick 134). Finally, recent research conducted in Guam suggests alcohol abuse results in violent behavior (see Pinhey, Lennon, and Pinhey 1998).

Our analysis of fighting among Guam's high school students begins with an examination of gender differences in the number of fights they have seen on their campus and continues with analyses of the number of physical fights they have participated in during the month prior to the survey. We then examine correlations of various predictor variables to the number of self-reported fights indicated by respondent.

The data in Table 7.1 suggest that female students were found to be less likely than male students to have witnessed a fight on their high school campus during the month prior to the survey (87 percent of males versus 80 percent females respectively). Yet, overall, the data indicate the

observance or awareness of fighting to be a widely common experience among all students (83.2 percent). We gain some insight to this finding from the Youth Risk Behavior studies by the U.S. Centers for Disease Control, which allow comparisons between Guam and other locations. In the 1997 Youth Risk Behavior study (CDC, 1998), Guam's calculated "12 month Incidence Rate of fights per 100 youth" ranked fourth (4<sup>th</sup>) among states, territories and cities. American Samoa had the highest incidence rate of 213.0 per 100 youth, and Guam was lower than Philadelphia (157.5) and New Orleans (153.3). But, the Guam rate of 141.4 per 100 students was higher than Dallas (135.7), Boston (135.5) and Detroit (135.2).

Confirming earlier research noted above (see Table 7.2), males were also found to be more likely than females to say they participated in a physical fight during the month previous to the survey (16.7 percent males versus 10 percent females respectively).

In Table 7.3 we present a reanalysis of the number of fights seen and the number of fights students participated in by examining the average number of fights and fights seen by the gender of students and for the total sample. As may be seen, males indicate they have seen more fights than do females (2.84 versus 1.94 respectively), and females report participating in fewer physical confrontations than do males (.36 versus .64 respectively). The average number of fights seen for the total sample is

2.38 and the average number of fights in which students participated is .50.

Finally, in Table 7.4 we examine the association of a number of predictor variables and self-reported physical fights for the total sample. The asterisk next to each correlation coefficient indicates a statistically significant association between a variable and self-reported fighting behavior. Reconfirming our earlier results, we see that males are significantly more likely than females to participate in fights. As well, it appears that older individuals are significantly more likely than are younger persons to report that they have been in a fight during the month prior to taking part in the survey. This finding corresponds with previous research conducted in the U.S. mainland (Fitzpatrick1997).

As noted earlier, alcohol consumption has been found to contribute to violent behavior. The data in Table 7.4 confirm this finding in that the number of drinks an individual reports consuming on an average basis is related significantly to participation in physical confrontations. Previous research also suggests that witnessing violence or being a victim of violence often results in aggressive behavior. As may be seen in Table 7.4, persons who are aware of fights at fiestas, of a women beating a man, and of a man beating a woman are more likely than other respondents to say they had participated in a fight during the month prior to the survey.

Finally, previous research suggests that the more attention students receive from their teachers, the less likely they are to participate in

aggressive behaviors. As may be seen in Table 7.4, the more attention a respondent says they receive from their teachers, the less likely they are to participate in fights.

In summary, programs designed to lessen violence in Guam's schools should focus on older males who tend to consume alcohol. **As well, attention from teachers, parents, and other adult role models may play an important role in reducing violence on Guam's high school campuses.** Further research using these data may provide additional findings that can be applied to problems of violence among Guam's high school students.

Table 7.1 Students Who Have Seen Fights on Campus by Gender and Total Sample

Saw Fights	Male	Female	Total Sample
Yes	86.9	79.6	83.2
No	13.1	20.4	16.8
Total	n=367	n=393	n=760

\*Significance Level: Chi Square = 7.2 (2x2 Table)  $p \leq .01$

Table 7.2 Has Participated In at Least One Physical Fight During the Last Month by Gender

In A Fight Past Month	Males	Females	Total Sample
Yes	16.7	10.1	13.3
No	83.3	89.9	86.7
Total	n=330	n=337	n=667

\*Significance Level: Chi Square = 6.6 (2x2 Table)  $p \leq .01$



Table 7.3 Average Number of Fights Seen and Participation in Fights During Last Month by Gender and Total Sample (number of cases in parentheses)

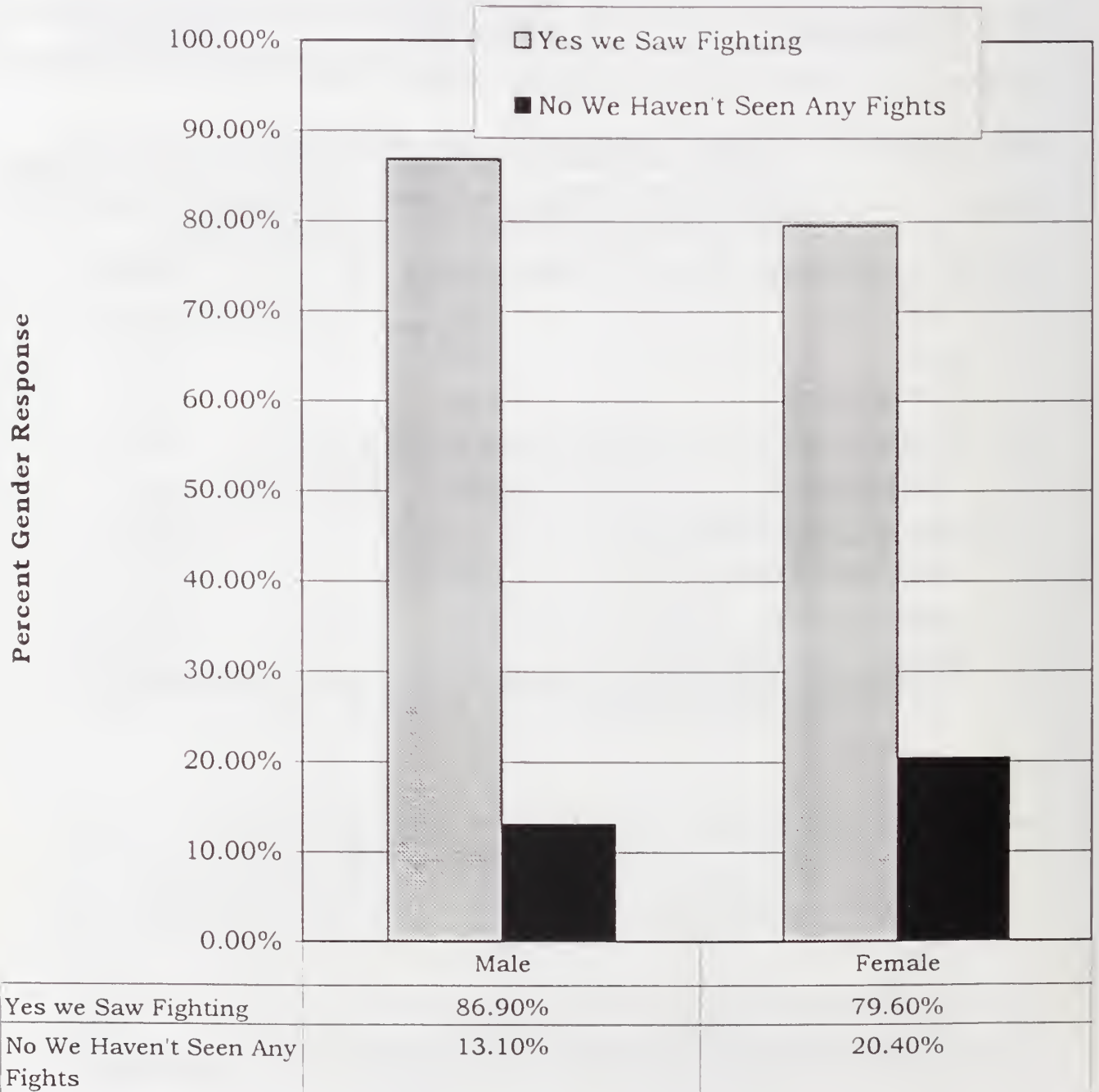
Gender	Fights Seen	Times in Fight
Male	2.84 (n=331)	.64 (n=331)
Female	1.94 (n=336)	.36 (n=338)
Total Sample	2.38 (n=667)	.50 (n=669)

Table 7.4 Bivariate Correlations for Number of Times in a Physical Fight with Gender (male), Age, Broken Family, Drinking, Attention from Teachers and Knowledge of Physical Violence

Variable	Correlation	Cases
Male	.103*	666
Age	.092*	658
Broken Home	.011	665
Drinks	.161*	405
Fight at Fiesta	.202*	655
Woman beats Man	.142*	656
Man beats Woman	.120*	663
Person Beaten	.144*	658
Teacher Attention	-.165*	666

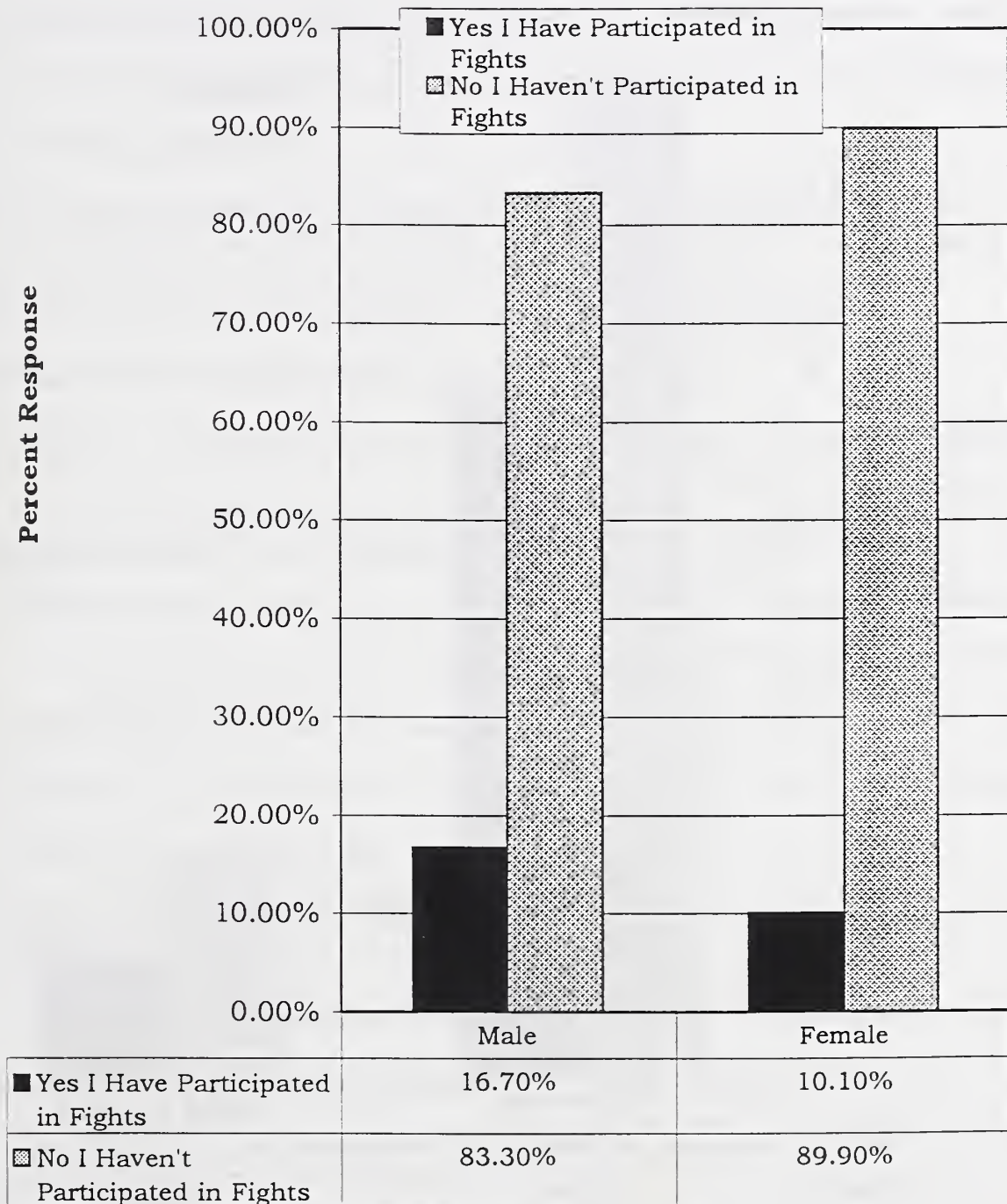
\*Significance Level  $p \leq .05$

Chart 7.1 Students Who Have Seen Fights on Campus



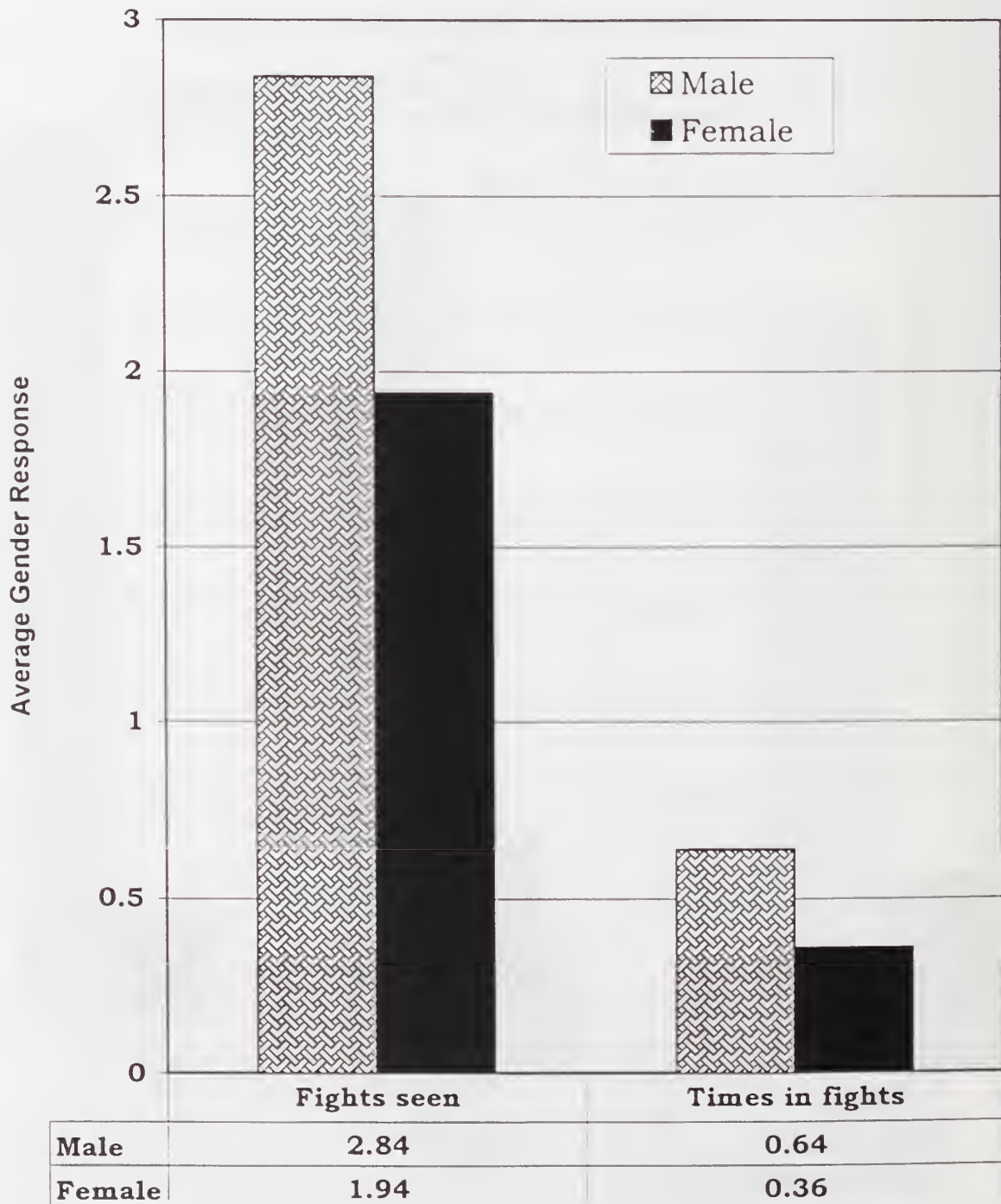
Gender Response for Fights Seen and Fights Not Seen

Chart 7.2 Has Participated in at Least One Physical Fight During The Last Month By Gender



Gender response for Fight

Chart 7.3 Average Number of Fights Seen and Participation In Fights by Gender During the Last Month



Fights Witnessed and Fights Involved In



## Section 8

### LINKAGES BETWEEN SUBSTANCE USE AND VIOLENCE

A primary aim of this research was to explore connections between substance use and violence. In this section, we briefly examine various linkages between substance use and violence variables. We specifically assessed:

- student sentiments regarding the contribution of drugs to violence;
- correlations among the likelihood students would use substances, perceptions of violence, and engagement in fighting.
- correlations among substance use and involvement in fights.

#### The Perceived Contribution of Drugs to Violence

Table 8.1 Student Attitudes Toward the Contribution of Drugs to Violence

	Yes	No	Total
Drugs Contribute To Violence?	45.8%	52.0%	
Total	354	401	756

As shown in Table 8.1, the sample was relatively split in student perceptions of whether or not drugs contribute to violence. There were slightly more students who indicated that they do not think drugs contribute to violence (53%).

#### Likelihood of Student Substance Use and Perceptions/Exposure to Violence

Table 8.2 is a correlation matrix of variables. It matches all of our measures of students' willingness to use various substances with perceptions of and exposure to violence in extended families and the immediate community. Correlations suggest that variables are related. Findings are presented on: a) linkages among willingness to smoke

tobacco, drink alcohol, try marijuana, and use Ice; and b) linkages between perceptions of/exposure to violence and willingness to use substances. Significant correlations have been indicated by asterisks.

***Linkages Among Willingness to Use Substances.*** As shown in Table 8.2, findings suggest that students who are willing to use one type of substance tend to be willing to use other drug substances. This is consistent with other studies on multiple substance use, and it confirms that students who indicated they would use one substance might also be willing to use other substances. The magnitude of the correlation coefficient suggests strength of association. For instance, the likelihood that one would smoke cigarettes is most strongly associated with willingness to try marijuana (.528\*\*), followed by the association between “would drink” and “would try marijuana” (.443\*\*). Other correlations are less in magnitude, but were nonetheless found to be significant.

***Perceptions of Violence and Willingness to Use Substances*** Findings suggest that students who reported having seen or heard about violence on more occasions than other students are less willing to use drug substances (i.e. robbery at gunpoint, murder, assault, domestic violence, fighting). This finding is indicated by negative correlation coefficients and implies that awareness of violence in extended family and community settings decreases one’s willingness to experiment with drug substances. Perhaps this finding is related to the high proportion of students who reported that they felt substance use and violence are related (as noted in

Table 8.1). In other words, if a substantial number of students believe that drugs contribute to violence, it is plausible that their exposure to violence decreases their willingness to use drugs. However, be mindful that the magnitudes of correlations are quite small as shown in Table 8.2, suggesting weak relationship among the variables in question. Also keep in mind that a correlation does not mean causation, therefore this interpretation is suggestive only.

### **Substance Use and Involvement in Fights**

***Linkages among Substances Used.*** Consistent with the findings suggesting that students who are willing to use one type of substance tend to be willing to use other types (Table 8.2), further analysis of correlations indicates that actual use of substances are correlated with actual use of other substance as shown in Table 8.3 (Correlation Matrix: Substance Use and Fighting). In fact, all variables indicating use of different types of substances were significantly correlated, with the exception of alcohol use and use of tranquilizers. Again, these findings lend some support to the prevalence of multiple drug use. The most correlated combinations of drugs included; use of cocaine and crack (.661\*\*), cocaine and heroin (.652\*\*), crack and heroin (.590\*\*), and tobacco smoking and marijuana use (.524\*\*). The following combinations of drug use seemed to be moderately related: tobacco smoking and alcohol (.418\*\*), marijuana and Ice (.381\*\*), alcohol and marijuana (.369\*\*), cocaine and hallucinogens (.363\*\*), crack and hallucinogens (.356\*\*), inhalants and stimulants

(.334\*\*), tranquilizers and stimulants (.308\*\*), Ice and hallucinogens (.307\*\*), and Ice and stimulants (.300\*\*). Other combinations of drug use exhibited lower correlations, but were nonetheless found to be significant. In short, these findings suggest multiple drug use.

***Types of Substance Used and Involvement in Fights.*** We also examined the relationship between substance use and involvement in fights. Interestingly, correlations between each type of substance used and number of fights were significant with the exception of tobacco, alcohol, and marijuana, but in a negative direction. This implies that students indicating they have used substances other than tobacco, alcohol, and marijuana, are more likely to not have been in a fight or have less number of fights. These findings contradict the research literature on a number of dimensions. First, the fact that alcohol use was not found to be significantly correlated with fighting is contrary to findings that suggest alcohol leads to violence. Second, the significant findings that imply substance use decreases one's likelihood of fighting also contradicts previous findings that substance use and violence are related. However, it is important that these findings be interpreted with caution, since the magnitude of significant correlations are overall rather small.

In summary, evidence clearly suggests multiple drug use and willingness to use several substances simultaneously. Interestingly, our findings suggest that exposure to violence decreases one's willingness to use drug.



Table 8.2 Pearson Correlation Matrix: Exposure to Violence by Would Respondent Use Drug Substances

<b>Matrix Variables</b>	1	2	3	4	5	6	7	8	9	10	11
1. Would Smoke	x										
2. Would Drink	.336**	x									
3. Would Try Marijuana	.528**	.443**	x								
4. Would Use Ice	.340**	.203**	.324**	x							
5. Robbery at Gunpoint	.035	.025	.055	-.043	x						
6. Person Kills Person	.000	-.054	.015	-.092*	.517**	x					
7. Person Beaten	-.151**	-.090*	-.137**	-.069	.317**	.399**	x				
8. Man Beats Woman	-.083*	-.033	-.064	-.105**	.357*	.431**	.467**	x			
9. Woman Beats Man	-.129**	-.029	-.076*	-.189**	.187**	.235**	.255**	.387**	x		
10. Number of Fights Seen	-.047	.002	-.114**	-.083*	-.011	.006	.103**	.022	.118**	x	
11. Number of Times in Fight	-.126**	-.024	.106**	-.018	-.023	.038	.042	.061	.016	.460**	x

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Table 8.3 Pearson Correlation Matrix: Substance Use and Fighting

Matrix Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.Never Smoked	x														
2.Never Alcohol	.418**	x													
3.Never Marij.	.524**	.369**	x												
4.Never Ice	.243**	.204**	.381**	x											
5.Used Cocaine	.134**	.079*	.178**	.263**	x										
6.Used Crack	.118**	.076*	.149**	.294**	.661**	x									
7.Used Heroin	.112**	.091*	.151**	.262**	.652**	.590**	x								
8.Other Hallu.	.168**	.158**	.257**	.307**	.363**	.356**	.413**	x							
9.Used Inhal.	.250**	.188**	.334**	.345**	.304**	.232**	.252**	.321**	x						
10.Used Analge.	.102**	.101**	.127**	.187**	.209**	.160**	.173**	.230**	.193**	x					
11.Used Tranq.	.074*	.073	.086*	.180**	.242**	.178**	.244**	.238**	.286**	.299**	x				
12.Used Stimu.	.140**	.129**	.191**	.300**	.304**	.289**	.273**	.273**	.334**	.292**	.308**	x			
13.Used Sedat.	.116**	.127**	.163**	.263**	.251**	.197**	.220**	.265**	.322**	.369**	.287**	.465**	x		
14.Used Needle	.079*	.054	.110**	.259**	.441**	.449**	.618**	.247**	.171**	.103**	.163**	.198**	.141**	x	
15.# of Times in Fight	-.064	-.044	-.065	-.085*	.195**	.175**	.229**	.137**	.126**	.106**	.172**	.122**	.119**	.226**	x

\*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed).

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## APPENDIX

### SURVEY QUESTIONNAIRE

[**Note:** The Survey Questionnaire which follows has been altered from the version originally administered to the high school students who participated in this study. Revisions have been limited to font, font size, alignment of text and removal of coding tools to reflect the format of this report. A copy of the original Survey Questionnaire will be made available upon request]

## Health Assessment Study Of High School Youth

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### SECTION I: Background Information

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1. To begin, we want to ask about your general view of the kinds of health problems - physical or mental - that may have been troubling you during the past week. Right now, would you say your health is *excellent, good, fair or poor*? Please **circle** the best answer:

Excellent 1  
Good . . . . . 2  
Fair 3  
Poor . . . . . 4

2. Would you say that, recently, you have enjoyed good mental and physical health, **or** have you had some problems during the past week? Please **circle** the best answer:

Good mental and physical health 1  
Physical health problems **only** . . . . . 2  
Mental health problems **only** 3  
Both physical and mental health problems . . . 4

3. Are you a male or a female? (Fill the appropriate box):

Male 1 ☐  
Female 2 ☐

4. How old are you? PRINT AGE HERE: \_\_\_\_\_

5. Where was your place of birth (e.g., island, State, or Country)?

PRINT ANSWER HERE: \_\_\_\_\_

6. How would you describe yourself? (Fill all boxes that apply.)

1 <input type="checkbox"/> African American	6 <input type="checkbox"/> Filipino	11 <input type="checkbox"/> Marshalese
2 <input type="checkbox"/> Caucasian	7 <input type="checkbox"/> Hispanic	12 <input type="checkbox"/> Palauan
3 <input type="checkbox"/> Chamorro	8 <input type="checkbox"/> Japanese	13 <input type="checkbox"/> Pohnepian
4 <input type="checkbox"/> Chinese	9 <input type="checkbox"/> Kosraiean	14 <input type="checkbox"/> Vietnamese
5 <input type="checkbox"/> Chuukese	10 <input type="checkbox"/> Korean	15 <input type="checkbox"/> Yapese

Other (please specify): 16 ☐ \_\_\_\_\_

7. With whom do you live most or all of the time (i.e., where you eat and sleep) Fill 1 box that BEST describes your residence, but you may fill 2 boxes if you divide time near equally between two residences.

1 <input type="checkbox"/> Both parents	6 <input type="checkbox"/> Alone
2 <input type="checkbox"/> Mother only	7 <input type="checkbox"/> Grandparent(s)
3 <input type="checkbox"/> Father only	8 <input type="checkbox"/> Other relatives (e.g., uncle, aunt, nino)
4 <input type="checkbox"/> Mother & stepfather	9 <input type="checkbox"/> Unrelated adults (e.g., foster family or a legal guardian)
5 <input type="checkbox"/> Father & stepmother	10 <input type="checkbox"/> Friends
11 <input type="checkbox"/> Other ( specify) _____	

8. What is your religious preference (e.g., Protestant, Roman Catholic, Mormon, Jewish, Muslim, attend the Indian Temple, or something different). **Please check 4 a box and WRITE your preference:**

- ☐ My religious preference is \_\_\_\_\_  
☐ None, no preference

9. About how often do you attend religious services?  
(Fill the appropriate box):

- ☐ 4 . . . More than once a week  
☐ 3 . . . Once a week  
☐ 2 . . . 1 to 3 times a month  
☐ 1 . . . Less than once a month  
☐ 0 . . . Never

10a. Do you ever talk about your problems with an adult family member? And if yes, to whom?  
(Fill all boxes that apply) .

NO / no adult 0 ☐ / *skip to Section II*

- YES 1 ☐ Mother 6 ☐ Older brother/sister  
2 ☐ Father 7 ☐ Other relative (e.g., uncle, aunt, nino)  
3 ☐ Stepmother 8 ☐ Unrelated adult (e.g., foster family, a legal guardian, teacher, coach)  
4 ☐ Stepfather 9 ☐ Priest/minister (i.e., person of the church)  
5 ☐ Grandparent 0 ☐ Other (list here) \_\_\_\_\_

10b. How frequently do you talk about problems with these adults?  
(Fill the appropriate box):

- ☐ 3 . . . Nearly always/weekly  
☐ 2 . . . Sometimes/monthly  
☐ 1 . . . Hardly ever/yearly  
☐ 4 . . . Never

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## SECTION II: Smoking and Tobacco Use

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*This section asks questions about your use of tobacco.*

11. Suppose next week, when you are with people you know, one of them gives you a cigarette: **Would you smoke it?**

- Definitely yes 1 ☐  
Maybe yes . . . . . 2 ☐  
Maybe not 3 ☐  
Definitely not . . . . 4 ☐  
Don't know 5 ☐

12. Sometimes people are offered a chance to smoke a tobacco cigarette. How old were you the first time you were **offered** tobacco to smoke?

AGE: \_\_\_\_\_ (leave blank if you have never been offered tobacco).

13. How old were you when you **first smoked** a tobacco cigarette, even just a puff?

- 0 ☐ I HAVE NEVER USED TOBACCO (*skip to SECTION III*)  
1 ☐ YES, I had my first smoke at AGE: \_\_\_\_\_

14. If you have **smoked** tobacco cigarettes, how long has it been since you smoked a tobacco cigarette?

(Fill the **one box that BEST states the last time.**)

- Within the last 24 hours 1 ☐  
Within the last 7 days 2 ☐  
Within the last month 3 ☐  
Within the last 6 months 4 ☐  
Within the last year 5 ☐  
More than one year ago 6 ☐

15. Do you smoke more frequently during the first hours in the morning after waking?

1 ☐ (yes)      2 ☐ (no)

Never smoked    0 ☐

16. Have you ever used any of these types of tobacco?

Chewing tobacco    1 ☐ (yes)      2 ☐ (no)

Cigars                1 ☐ (yes)      2 ☐ (no)

Pipes                 1 ☐ (yes)      2 ☐ (no)

Never smoked                0 ☐

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### SECTION III: Alcohol Use

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**This set of questions asks about your use of alcohol.**

17. Suppose next week, when you are with people you know, one of them gives you a beer or wine or some other drink with alcohol in it. **Would you drink it?**

Definitely yes      1 ☐

Maybe yes . . . . . 2 ☐

Maybe not          3 ☐

Definitely not . . . . 4 ☐

Don't know          5 ☐

18. Sometimes people are offered a chance to drink beer or other alcoholic drinks. How old were you the first time you were **offered** beer, wine, wine coolers, liquor or any other drink with alcohol in it?

AGE: \_\_\_\_\_ (leave blank if you have never been offered alcohol).

19. How old were you when you **first drank** beer, wine, liquor or any other drink with alcohol in it?

0 ☐ I have not really begun to drink alcohol (**Skip to SECTION IV**)

1 ☐ YES, I had my first drink at AGE: \_\_\_\_\_

20. How old were you the first time you got **drunk or high on alcohol**?

1 ☐ (yes, I have) AGE \_\_\_\_\_

2 ☐ (no, I have not been)

21. How many drinks containing alcohol do you have on a typical day or evening when you are drinking?

1 ☐ 1 or 2 drinks      4 ☐ 7 or 8 drinks

2 ☐ 3 or 4 drinks      5 ☐ 9 or 10 drinks

3 ☐ 5 or 6 drinks      6 ☐ More than 10 drinks

22. During the past 30 days/ 1 month, on how many days did you have at least one drink containing alcohol?

0 ☐ None (0 days)

1 ☐ 1 or 2 days

2 ☐ 3 to 4 days

3 ☐ 5 to 6 days

4 ☐ 7 to 8 days

5 ☐ 9 to 10 days

6 ☐ More than 10 days

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**SECTION IV: Village**

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**The next set of questions is about your village or neighborhood.**

23. How often have you seen or heard about any of the following things happening among your extended family or in your village area during the past year. (please circle the appropriate number):

	<u>Never</u> {1}	<u>At least one time</u> {2}	<u>Several times(2-3)</u> {3}	<u>4 or more Times</u> {4}
Neighborhood or village meetings	1	2	3	4
Robbery at gun point	1	2	3	4
Someone breaking into a home	1	2	3	4
Someone killed by a car	1	2	3	4
Someone killed by a person	1	2	3	4
Someone painting graffiti	1	2	3	4
Someone being beaten-up	1	2	3	4
Fighting at a fiesta	1	2	3	4
Young people participating in youth clubs in the village	1	2	3	4
A man beating a woman	1	2	3	4
A woman beating a man	1	2	3	4
Someone selling or buying drugs	1	2	3	4
People playing sports or games outdoors	1	2	3	4
Gambling in a home	1	2	3	4
Someone stealing a car	1	2	3	4
Someone breaking into a car	1	2	3	4
People talking or meeting about a neighborhood watch program	1	2	3	4
Someone abandoning a car in the boonies	1	2	3	4
People carrying guns	1	2	3	4
People carrying knives	1	2	3	4
People helping other people in the neighborhood or village	1	2	3	4



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### SECTION V: Marijuana Use

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*This section asks questions about marijuana use.*

24. Suppose next week, when you are with people that you know, one of them gives you some marijuana to smoke. **Would you try it?**
- Definitely yes      1 ☐  
Maybe yes . . . . . 2 ☐  
Maybe not          3 ☐  
Definitely not . . . 4 ☐  
Don't know          5 ☐
25. Sometimes people are offered a chance to try smoking marijuana. How old were you the first time you were **offered marijuana?**
- AGE: \_\_\_\_\_ (leave blank if you have never been offered marijuana).
26. How old were you when you **first smoked** marijuana?
- 0 ☐ I have never tried marijuana {*Skip to SECTION VI*}  
1 ☐ YES, I first tried marijuana at AGE: \_\_\_\_\_
27. How old were you the first time you got **high on marijuana?**
- 1 ☐ (yes, I have) AGE \_\_\_\_\_  
2 ☐ (no, I have not)
28. When was the last time you smoked marijuana?
- 1 ☐ Within 24 hours  
2 ☐ Within last 7 days  
3 ☐ Within last month  
4 ☐ Within last 6 months  
5 ☐ Within last year  
6 ☐ More than one year ago

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### SECTION VI: Ice

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*This section asks about your use of ice.*

29. Suppose that next week, when you are with people you know, one of them gives you ice to smoke (or shoot). **Would you try it?**
- Definitely yes      1 ☐  
Maybe yes . . . . . 2 ☐  
Maybe not          3 ☐  
Definitely not . . . 4 ☐  
Don't know          5 ☐
30. Sometimes people are offered a chance to try smoking or shooting ice. How old were you the first time you were **offered ice?**
- AGE: \_\_\_\_\_ (leave blank if you have never been offered ice to try).
31. How old were you when you **first used** ice?
- 0 ☐ I have never tried ice {*Skip to SECTION VII*}  
1 ☐ YES, I first tried ice at AGE: \_\_\_\_\_
32. When was the last time you smoked or used ice?
- 1 ☐ Within 24 hours  
2 ☐ Within last 7 days  
3 ☐ Within last month  
4 ☐ Within last 6 months  
5 ☐ Within last year  
6 ☐ More than one year ago

33. Have you seen a person 'shoot-up' or 'bang' ice?  
1 ☐ (yes) 2 ☐ (no)
34. Have you seen people 'share the same needle when 'banging'  
1 ☐ (yes) 2 ☐ (no)

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#### SECTION VII: Other Substances

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*This section asks about your use of other substances.*

35. In your life, have you ever tried any of the following drugs?
- |  | <u>YES</u>                 | <u>NO</u>                  |
|--|----------------------------|----------------------------|
| Cocaine  | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| Crack (cocaine in rock or chunk form)  | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| Heroin . . . . .   | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| LSD, Peyote, mescaline, PCP or any other hallucinogen                        | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| Inhalants (liquids, sprays and gases that people sniff or inhale to get high | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
36. Have you ever used any of the following drugs to get high on your own, or used more than was prescribed by a doctor?
- |  | <u>YES</u>                 | <u>NO</u>                  |
|--|----------------------------|----------------------------|
| Analgesics (pain killers)                                      | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| Tranquilizers (Librium, Valium or Xanax)                       | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| Stimulants (amphetamines, Preludin or "uppers")                | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
| Sedatives (barbiturates, sleeping pills, Seconal or "downers") | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> |
37. Have you ever used a needle and syringe to shoot dope (e.g., smack or crack, cocaine, heroin or other)?  
2 ☐ (no) 1 ☐ (yes)
38. If yes, have you ever used a needle or syringe **AFTER** someone else used it (i.e., shared a set of 'works')?  
2 ☐ (no) 1 ☐ (yes)

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#### SECTION VIII: School

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*This section asks questions about you and your school.*

39. Do students break rules in your school?  
3 ☐ Frequently  
2 ☐ Sometimes  
1 ☐ Rarely
40. When students break rules in your school, how seriously do the teachers and staff take that violation?  
1 ☐ Not very seriously  
2 ☐ Somewhat seriously  
3 ☐ Very seriously
41. What is your grade in school?  
1 ☐ Freshman (9th grade) 3 ☐ Junior (11th grade)  
2 ☐ Sophomore (10th grade) 4 ☐ Senior (12th grade)
42. Is it easy for people who don't attend or belong in your school to enter the school?  
1 ☐ (yes) 2 ☐ (no)
43. Students often break rules because they know they can get away with it.  
1 ☐ (yes) 2 ☐ (no)
44. Teachers have a hard time controlling classes.  
1 ☐ (yes) 2 ☐ (no)
45. Drugs and alcohol are major contributors to violence at your school.  
1 ☐ (yes) 2 ☐ (no)

46. Kids who do not go to your school often cause problems in or around your school.

1 ☐ (yes) 2 ☐ (no)

47. Teachers in this school only think of their students as numbers.

1 ☐ (yes) 2 ☐ (no)

48. How often do you feel you receive personal attention from your teacher?

4 ☐ All of the time  
3 ☐ Some of the time  
2 ☐ A few times  
1 ☐ Hardly ever

49. Have you ever witnessed a physical fight at your school?

1 ☐ (yes) 2 ☐ (no)

50. How many times in the last month (30 days) did you witness a physical fight at your school?

Please Print Number: \_\_\_\_\_

51. How many times in the last month (30 days) did you get into a physical fight with someone?

Please Print Number: \_\_\_\_\_

52. Have you taken part in any school and community extra-curricular activities during this school year?

	YES	NO
School newspaper or yearbook	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Student government	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Music, band, orchestra groups	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
School athletic sport teams (cheer leaders, too)	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Organized sports outside school (e.g., soccer or baseball)	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
School clubs (e.g., Spanish club, computer club, etc)	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Dance, theatre or performing arts	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Boy or Girl Scouts	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Church youth clubs or church volunteer group	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
<u>Other</u> club or volunteer service (list in space below)	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Worked in a relative's or my family's business	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no
Employed part or full time by private business	1 <input type="checkbox"/> yes	2 <input type="checkbox"/> no

*Thank you for your cooperation!*

**Please turn in your survey to the person monitoring this activity.**







